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RECLAIMED RUBBER

BUFFALO BRANDS

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U. S. RUBBER RECLAIMING Co Inc.

42ND ST. BUILDING, NEW YORK

EUROPEAN AGENTS: ARTHUR MEYER & CO., LTD., 29 MINCING LANE LONDON, E.C.

United States Rubber Company

1790 Broadway

New York

The Largest Rubber Manufacturers in the World

Indexed Buyers' Guide to Rubber Products

Below will be found a list of Rubber Products and the index to the Rubber Companies who manufacture each item, compiled from information furnished by the manufacturers. The key symbols after the names of the articles refer to the names of manufacturers that appear in the Alphabetical List of Rubber Manufacturers that follows this BUYERS' GUIDE. Further information for Buyers will be gladly furnished by The Rubber Age

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Hose, Mill and Factory, B42, B50, C40, C54, E20, E26, G30, G50, H8, N28, C6, D38, G22.

Hose, Molded, B42, B50, C40, C54, E20, E26, G30, G50, H8, J10, M50, N28, P20, Q4, R18, R20, U4, U10, W42, C6, D38, G22.

Hose, Oil, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68 T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Oil Suction, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

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United States Tires

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Sleeves, Electricians', C22.
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Wire, Armored, A84, B22, D20, I12, N42, S2, G22.
Wire, Lead Covered, A84, I12, N42, S2, G22.

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Bags, Punching, D6, S38, U10, C6, G22.
Balls, Bat, F14, S38, U10, C6, G22.
Balls, Foot, H40, S38, U10, C6, G22.
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Chips, Poker, U10, C6, G22.
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Cases, Thermometer, U10, G22.
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Grips, Pistol, U10, G22.
Handles, U10, G22.
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Parts, Internal, U10, G22.
Pipes, T16, U10, G22.
Plates, Gun Butt, U10, G22.
Rods, S68, U10, G22.
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Alphabetical List of Rubber Manufacturers

THE RUBBER AGE will furnish information and addresses of all companies listed below. Names of advertisers in this issue are printed in heavy face type.

A 2—A. & A. Rubber Co.
A 4—A. A. Wire Co., Inc.
A 6—Acme Rubber Mfg. Co.
A 8—Acorn Insulated Wire Co.
A 10—Advance Rubber Co.
A 12—Aetna Rubber Co.
A 13—Aiken-Lambert Co.
A 14—Ajax Rubber Co., Inc.
A 16—Akron Rubber Works.
A 18—Akron Tire Co., Inc.
A 20—Alden Rubber Co.
A 22—Allcock Mfg. Co.
A 24—Allen, W. D., Mfg. Co.
A 26—Alliance Rubber Co.
A 28—Amazon Rubber Co. See Advertisement on Page 299.
A 30—American Asbestos Co.
A 32—American Electrical Works.
A 34—American Hard Rubber Co.
A 36—American Lead Pencil Co.
A 38—American Para Rubber Co.
A 40—American Rubber & Tire Co.
A 42—American Rubber Co.
A 44—American Rubber Fabric Co.
A 46—American Rubber Mfg. Co.
A 48—American Rubber Mfg. Co. of N. J.
A 50—American Steam Packing Co.
A 52—American Steel & Wire Co.
A 54—American Tire Co.
A 56—American Tire Co.
A 58—American Wringer Co.
A 60—Anchor Packing Co.
A 62—Anderson, L. M., Co.
A 64—Anderson Rubber Works.
A 66—Apsley Rubber Co.
A 66—Archer Rubber Co.
A 68—Armstrong Rubber Co., Inc.
A 70—Asbestos Fibre Spinning Co.
A 72—Asbestos & Rubber Works of America.
A 74—Asbestos & Rubber Works of New Jersey.
A 76—Asbestos Textile Co., Inc.
A 78—Aseptic Products Co.
A 80—Ash, Claudius, Sons & Co., Ltd.
A 82—Astoria Wire Co.
A 83—Athol Mfg. Co.
A 84—Atlantic Insulated Wire & Cable Co.
A 86—Atlantic Mfg. Co.
A 88—Atlantic Rubber Co.
A 90—Atlas Auto Supply Co.
A 92—Augustine, W. B.
A 94—Avon Sole Co.

B 4—Baltimore Rubber Tire Mfg. Co., Inc.
B 6—Banigan Rubber Co.
B 8—Batavia Rubber Co.
B 10—Bauer & Black.
B 12—Baumann Rubber Co.
B 14—Bay State Insulated Wire & Cable Co.
B 16—Beacon Rubber Mfg. Co.
B 18—Beacon Falls Rubber Shoe Co.
B 20—Behrend & Rothschild.
B 22—Belden Mfg. Co.
B 24—Bell, Andrew, Estate of.
B 26—Belmont Packing & Rubber Co.
B 28—Berlin Rubber Mfg. Co.
B 30—BeSaw Tire & Rubber Co.
B 32—Bergougnan Tire Corp.
B 34—Bishop Gutta Percha Co.
B 36—Blake, Whitney Co.
B 38—Blakesley Novelty Co.
B 40—Boonton Rubber Mfg. Co.
B 42—Boston Belting Co.
B 44—Boston Blacking Co.
B 46—Boston Insulated Wire & Cable Co.
B 48—Boston Rubber Shoe Co.
B 50—Boston Woven Hose and Rubber Co. See Advertisement on Page 303.
B 52—Bourn Rubber Co.
B 54—Bowers Rubber Works.
B 56—Bowling Green Rubber Co.
B 58—Braender Rubber & Tire Co.
B 60—Braintree Rubber Cement Co.
B 62—British-American Mfg. Co.
B 64—Brock, A. S., Rubber Co.
B 66—Brooklyn Shield & Rubber Co.
B 68—Brunswick - Balke - Collender Co.
B 70—Bucyrus Rubber Co.
B 72—Buffalo Weaving & Belting Co.

C 2—C. C. C. Fire Hose Co.
C 4—Canada Wire & Cable Co., Ltd.
C 6—Canadian Consolidated Rubber Co., Ltd.
C 8—Canadian General Electric Co., Ltd.
C 10—Canadian Rubber Company of Montreal, Ltd.
C 12—Canadian Top Co., Ltd.
C 14—Cancos Mfg. Co.
C 16—Candee, L., & Co.
C 18—Canfield, H. O., Co. See Advertisement on Page 304
C 20—Canfield Rubber Co.
C 22—Canton Rubber Co.
C 24—Carborundum Co.
C 26—Carolina Puncture Proof Tubing Co.
C 28—Carr, F. S., Co.
C 30—Centaur Rubber & Tire Co., Inc.
C 32—Century Rubber Works.
C 34—Chemical Rubber Co.
C 36—Chicago Rubber Clothing Co.
C 38—Cigoi, F. A., Rubber Co.
C 40—Cincinnati Rubber Mfg. Co.
C 42—Clark Rubber Mfg. Co.
C 44—Clifton Mfg. Co.
C 46—Collyer Insulated Wire Co.
C 48—Colorado Tire & Leather Co.
C 50—Columbia Tire & Rubber Co.
C 52—Columbus Rubber Co. of Montreal, Ltd.
C 54—Combination Rubber Mfg. Co.
C 56—Community Rubber Co.
C 58—Conklin Pen Mfg. Co.
C 60—Conquerer Rubber Cement Co.
C 62—Consolidated Hoof Pad Co.
C 64—Continental Rubber Works.
C 66—Converse Rubber Shoe Co.
C 68—Cortland Tire & Rubber Co.
C 70—Craig Dental Mfg. Co.
C 72—Crandall Packing Co.
C 74—Crescent Insulated Wire & Cable Co.
C 76—Cummer-Dowswell, Ltd.
C 78—Cummings, G. R., & Co.
C 80—Cupples Co.
C 82—Cutten & Foster.

D 2—Davidson Rubber Co.
D 4—Davis-Fry Mfg. Co.
D 6—Davol Rubber Co. See Advertisement on Page 305.
D 8—Day, H. P. & E., Inc.
D 10—Dayton Rubber Mfg. Co.
D 12—Dealers Steam Packing Co.
D 14—Deane Plaster Co.
D 16—Delion Tire & Rubber Co.
D 18—De Silva Rubber Co., Inc.
D 20—Detroit Insulated Wire Co.
D 22—Dick, R. & J., Ltd.
D 24—Dixon, Joseph, Crucible Co.
D 26—Doherty, Eugene, Rubber Works, Inc.
D 28—Dominion Rubber Co., Ltd.
D 30—Dominion Tire Co., Ltd.
D 32—Dreadnaught Tire & Rubber Co.
D 34—Dry Climate Tire Mfg. Co.
D 36—Dryden Rubber Co.
D 38—Dunlop Tire & Rubber Goods Co., Ltd.
D 40—Dural Rubber Corp.

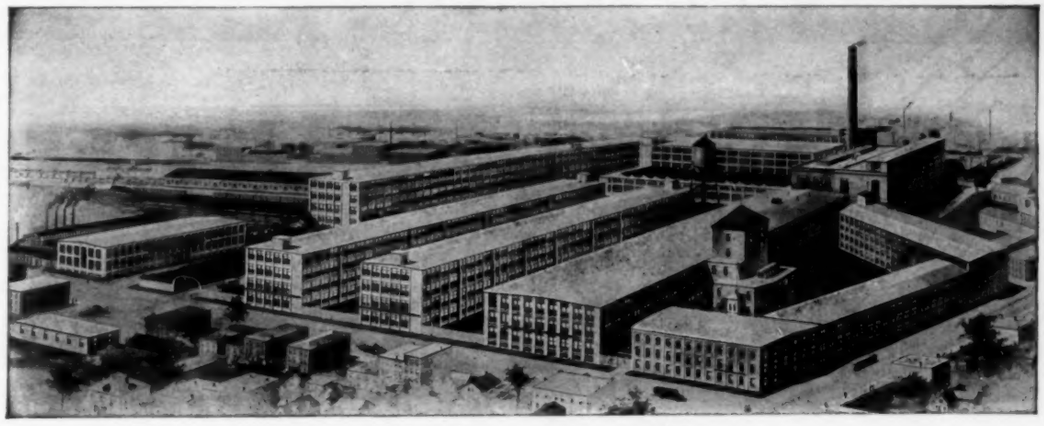
E 2—Eagle Pencil Co.
E 4—Eagle Rubber Co.
E 6—Eagle Rubber Cement Co.
E 8—Eastern Electric Cable Co.
E 10—Eastern Rubber Co.
E 12—Easthampton Rubber Thread Co.
E 14—East Palestine Rubber Co.
E 16—Eclipse Cement & Blacking Co.
E 18—Ehman Tire & Rubber Co.
E 19—Electric Cable Co.
E 20—Electric Hose & Ruber Co.
E 22—Elkhart Rubber Works.
E 24—Ellis Cement Co.
E 26—Empire Rubber & Tire Co.
E 28—Endura Mfg. Co.
E 30—Eudurance Tire & Rubber Co.
E 32—Essex Rubber Co., Inc. See Advertisement on Page 303.
E 34—Eureka Cement Co.
E 36—Eureka Fire Hose Mfg. Co.
E 38—Eureka Packing Co.
E 40—Eureka Rubber Mfg. Co.
E 42—Excello Raincoat Co.
F 2—Faber, A. W.
F 4—Faber, Eberhard, Rubber Co.
F 6—Fabric Fire Hose Co.
F 8—Fairfield Rubber Co.
F 10—Falls Rubber Co.
F 12—Falls Novelty Co.
F 14—Faultless Rubber Co.
F 16—Featheredge Rubber Co.
F 18—Federal Asbestos Co.
F 20—Federal Rubber Co.
F 22—Firestone Tire & Rubber Co.
F 24—Fisk, Ltd.
F 26—Fisk Rubber Co.
F 28—Flexible Rubber Goods Co.
F 30—Ford Motor Co.
F 32—Foster Rubber Co.
F 34—Franche, C. E. Co.
F 36—Franklin Rubber Co.

G 2—G. & J. Tire Co.
G 4—Garlock Packing Co.
G 6—General Asbestos & Rubber Co.
G 8—General Electric Co.
G 10—General Tire & Rubber Co.
G 12—Giant Tire & Rubber Co.
G 14—Gibney Tire & Rubber Co.
G 16—Gillette Rubber Co.
G 18—Globe Rubber Co.
G 20—Globe Rubber Tire Mfg. Co.
G 22—Goodrich Rubber Co., The B. F.
G 24—Goodyear Rubber Co.
G 26—Goodyear Rubber Insulating Co.
G 28—Goodyear Tire & Rubber Co.
G 30—Goodyear Tire & Rubber Co. of Canada, Ltd.
G 32—Goodyear's India Rubber Glove Mfg. Co.
G 33—Goodyear's India Rubber Selling Co.
G 34—Goodyear's Metallic Rubber Shoe Co.
G 36—Gordon Tire & Rubber Co.
G 38—Gould Packing Co.
G 40—Granby Rubber Co., Ltd.
G 42—Great Eastern Rubber Co.
G 44—Greensburg Tire & Rubber Co.
G 46—Gregory Rubber Co.
G 48—Gryphon Tire & Rubber Co.
G 50—Gutta Percha & Rubber, Ltd.
G 52—Gutta Percha & Rubber Mfg. Co.

H 2—Habirshaw Electric Cable Co.
H 4—Hainsburg, N. H. & Co.
H 6—Hale, Alfred Rubber Co.
H 7—Halifax Rubber Co.
H 8—Hamilton Rubber Mfg. Co.
H 10—Hanover Rubber Co.
H 12—Hardman Tire & Rubber Co.
H 14—Hartford Rubber Works Co.
H 16—Hardright Co.
H 20—Hatch, Henry C.
H 22—Hauthaway & Sons, Inc.
H 24—Hawkeye Tire and Rubber Co.
H 26—Hazard Mfg. Co.
H 28—Hazen-Brown Co.
H 30—Heath, Edmund F. & Son.
H 32—Hendler, Jesse.
H 34—Hendrie, W. C. Rubber Co.
H 36—Hewitt Rubber Co.
H 40—Hodgman Rubber Co.
H 42—Hollingshead, R. M.
H 44—Holmes Packing & Supply Co.
H 46—Home Rubber Co.
H 48—Hood Rubber Co.
H 50—Hood Tire Co.
H 52—Hosmer, G. A. Co.
H 54—Howe - Baumann Balloon Co.
H 56—Howe Rubber Co.
H 58—Huntington Tire & Rubber Co.
H 60—Hygienic Rubber Works.

I 2—Ideal Rubber Co.
I 6—Independent Rubber Co., Ltd.
I 8—India Rubber Co.
I 10—Indian Rubber Mfg. Co., Inc.
I 12—Indiana Rubber & Insulated Wire Co.
I 14—International Rubber Co.
I 16—International India Rubber Corp.
I 18—Invincible Tire Co.

BULL DOG



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Alphabetical List of Rubber Manufacturers—Continued

J 2—Jackson-Eno Rubber Co.
J 4—Jenkins Rubber Co.
J 6—Johnson, Henry Co.
J 8—Johnson & Johnson.
J 10—Johns-Manville, H. W. Co.
J 12—Johns-Pratt Co.
K 2—Kansas City Rubber & Tire Co.
K 3—Kanzee Tire Co., Ltd.
K 4—Kaufman Rubber Co., Ltd.
K 6—Keasbey & Mattison Co.
K 8—Keaton Tire & Rubber Co.
K 10—Kelly-Springfield Tire Co.
K 12—Kenyon, C. Co.
K 14—Kerite Insulated Wire & Cable Co.
K 16—Keystone Rubber Mfg. Co., Inc.
K 18—Killion Rubber Co.
K 20—King Rubber Co.
K 22—Kleinert, I. B. Rubber Co.
K 24—Knight Tire & Rubber Co.
K 26—Kokomo Rubber Co.

L 2—L. & M. Rubber Co.
L 4—La Crosse Rubber Mills Co.
L 6—La Favorite Rubber Mfg. Co.
L 8—Lambertville Rubber Co.
L 10—Lancaster Tire & Rubber Co.
L 12—Laurel Company.
L 14—Lee Tire & Rubber Co.
L 16—Lion Tire & Rubber Corp.
L 18—Lincoln Rubber Co.
L 20—Lovell Mfg. Co.
L 22—Lowell Insulated Wire Co.
L 24—Lubron Co.
L 26—Luzerene Rubber Co.
L 28—Lycoming Rubber Co.
L 30—Lynn Rubber Mfg. Co

M 2—McClurg Rubber Co.
M 4—McCormick, E. J. Rubber Co.
M 6—McCreary Tire & Rubber Co.
M 8—McCue & Pierce.
M 10—McGraw Tire & Rubber Co.
M 12—McIlroy Belting & Hose Co.
M 14—McLean Tire & Rubber Co.
M 16—McNaull Tire Co.
M 18—McTernen Rubber Mfg. Co.
M 20—Maguire Rubber Co.
M 22—Manhattan Rubber Mfg. Co.
M 24—Manheim Mfg. & Belting Co.
M 26—Mansfield Tire & Rubber Co.
M 28—Maple Leaf Rubber Co.
M 30—Marathon Tire & Rubber Co.
M 32—Marathon Tire & Rubber Co., Ltd.
M 34—Marion Insulated Wire & Rubber Co.
M 36—Marion Tire & Rubber Co.
M 38—Mason Tire & Rubber Co.
M 40—Massillon Rubber Co.
M 42—Mattson Rubber Co.
M 44—Mayflower Rubber Works Co.
M 46—Meade Rubber Co.
M 48—Mechanical Fabric Co.
M 50—Mechanical Rubber Co. (Chicago).
M 52—Mechanical Rubber Co. (Cleveland).
M 54—Mercer Rubber Co.
M 56—Merchants' Rubber Co.
M 58—Metal Hose & Tubing Co.
M 62—Meyer Rubber Co.
M 64—Michelin Tire Co.
M 65—Midland Tire & Rubber Co.
M 66—Miller Rubber Co.
M 68—Miner Rubber Co., Ltd.
M 70—Minzensheimer, Dr. Her.
M 72—Mishawaka Woolen Mfg. Co.
M 74—Mohawk Rubber Co.
M 76—Montgomery Bros., Inc.
M 76—Moore, Alfred F.
M 80—Morgan & Wright.
M 82—Mulconroy Company, Inc.
M 84—Mutty, L. J. Co.
M 86—Mutual Tire & Rubber Co.
M 88—Mystic Rubber Corp.

N 2—Narragansett Rubber Co.
N 4—National Aseptic Laboratories.
N 6—National Co.
N 8—National India Rubber Co.
N 10—National Rubber & Specialties Co.
N 12—National Rubber Co.
N 14—National Rubber Mfg. Co.
N 16—National Tire & Rubber Co.
N 18—Needham Tire & Rubber Co.
N 20—Newark Rubber Co.
N 22—New Brunswick Rubber Co.
N 24—New Castle Rubber Co.
N 26—New England Cable Co.
N 28—New Jersey Car Spring & Rubber Co.
N 30—New Jersey Rubber Supply Co.
N 32—New York Belting & Packing Co.
N 34—New York Insulated Wire Co.
N 36—New York Mackintosh Co.
N 38—New York Rubber Co.
N 40—New York Shield Co.
N 42—Northern Electric Co., Ltd.
N 44—Northland Rubber Co., Inc.
N 46—Norwalk Tire & Rubber Co.

O 2—O. K. Tire Co.
O 4—Okonite Co.
O 6—Olden Rubber Mfg. Co.
O 8—Oliver Rubber Mfg. Co.
O 12—Omo Mfg. Co.
O 12—Oriental Rubber Co.

P 2—Packard Electric Co.
P 4—Panther Rubber Mfg. Co.
P 6—Parker Pen Co.
P 8—Parker, Stearns & Co.
P 10—Partridge, F. E. Rubber Co.
P 12—Pearce-Arrow Tire & Rubber Co.
P 14—Pearce Tire & Rubber Co.
P 16—Peerless Cement Co.
P 18—Peerless Insulated Wire & Cable Co.
P 20—Peerless Rubber Mfg. Co.
P 22—Peerless Tire & Rubber Co.
P 24—Pennsylvania Rubber Co.
P 26—Perfection Tire & Rubber Co.
P 28—Perfection Tube Co.
P 30—Peters Mfg. Co.
P 32—Pharis Tire & Rubber Co.
P 34—Phillips, Eugene F., Electrical Works, Ltd.
P 36—Phillips Insulated Wire Co.
P 38—Phoenix Hermetic Co.
P 40—Pike Rubber Co.
P 42—Pines Rubber Co., Inc.
P 44—Plymouth Rubber Co.
P 46—Polack Tyre & Rubber Co.
P 48—Portage Rubber Co.
P 50—Porter Rubber Co.
P 52—Portland Rubber Mills
P 54—Prenzel, A. H., Rubber Co..
P 56—Progress Rubber Co.
P 58—Progressive Rubber Co.
P 60—Puget Sound Rubber Co.

Q 2—Quabaug Rubber Co.
Q 4—Quaker City Rubber Co.
Q 6—Quality Tire & Rubber Co.
Q 8—Quinn, K. J., & Co.

R 2—Racine Auto Tire Co.
R 4—Racine Rubber Co.
R 6—Rainbow Rubber Co.
R 8—Raley Rubber Co.
R 10—Raymond & Co.
R 12—Reach, A. J., Co.
R 14—Reading Rubber Mfg. Co.
R 16—Reality Rubber Co.
R 18—Republic Rubber Co.
R 20—Revere Rubber Co.
R 22—Roberts Rubber Co., Weldon.
R 24—Roebling's, John A., Sons Co.
R 26—Rome Wire Co.
R 28—Rosenthal & Katz.
R 30—Rosenwald & Weil.
R 32—Royal Equipment Co.
R 34—Royal Rubber Cement Co.
R 36—Royal Rubber Works.
R 38—Rubber & Celluloid Harness Trimming Co.
R 40—Rubber Goods Mfg. Co.
R 42—Rubber Insulated Metals Corp.
R 44—Rubber Products Co.
R 46—Rubberset Co.
R 48—Rubber Step Mfg. Co.
R 50—Rubber Stopple Co.
R 52—Ryan Ideal Stain Blacking Co.

S 2—Safety Insulated Wire & Cable Co.
S 4—Salem Rubber Cement Co.
S 6—Salem Rubber Co.
S 8—Savage Tire Corp.
S 10—Savoie Rubber Co.
S 12—Schacht Rubber Mfg. Co.
S 14—Schavoir Rubber Co.
S 16—Schaw Cone Tire Co.
S 18—Schein, S., & Sons.
S 20—Schmid-Lyon Rubber Co.
S 22—Schwarzwaelder Co.
S 24—Seabury & Johnson.
S 26—Seamless Rubber Co.
S 28—Semple Rubber Co.
S 30—Simplex Wire & Cable Co.
S 32—Smith Canvas Tread Tire Co.
S 34—Soltau, Robert, Co.
S 36—Southern Tire & Rubber Co.
S 37—Sovoie Rubber Co.
S 38—Spalding, A. G., & Bros.
S 40—St. Louis Rubber Cement Co.
S 42—St. Mungo Mfg. Co. of America
S 44—Standard Four Tire Co.
S 46—Standard Rubber & Cable Co.
S 48—Standard Tire & Rubber Co.
S 50—Standard Tire & Rubber Mfg. Co. See Advertisement on Page 306.
S 52—Standard Underground Cable Co.
S 54—Standard Woven Fabric Co.
S 56—Star Rubber Co.
S 58—Steece, Mortimer.
S 60—Sterling Rubber Co., Ltd.
S 62—Stokes, Joseph, Rubber Co.
S 64—Stoughton Rubber Co.
S 66—Stowe & Woodward Co.
S 68—Strong Rubber & Asbestos Mfg. Co.
S 70—Sun Novelty Co.
S 72—Sunset Rubber & Supply Co.
S 74—Sussex Rubber Co.
S 76—Swinehart Tire & Rubber Co.

T 2—Taunton Rubber Co.
T 4—Ten Broeck Tyre Co., Inc.
T 6—Thermoid Rubber Co.
T 8—Tilton Rubber Mfg. Co.
T 10—Toronto Rubber Co., Ltd.
T 12—Transparent Rubber Co.
T 14—Traun Rubber Co
T 16—Tyer Rubber Co.

U 2—U-Glu Supply Corp.
U 4—United & Globe Rubber Mfg. Co.
U 6—United Shoe Machinery Co.
U 8—United States Asbestos Co.
U 10—United States Rubber Co. See Advertisement on Page 295.
U 12—United States Tire Co. See Advertisement on Page 300.
V 2—Vail Rubber Co.
V 4—Van Cleef Bros.
V 6—Victor Balata & Textile Belting Co.
V 8—Victor Rubber Co.
V 10—Viscol Company.
V 12—Voorhees Rubber Mfg. Co. See Advertisement on Page 303.
V 14—Vulcalose Co.
V 16—Vulcan Asbestos Mfg. Co., Inc.
V 18—Vulcan Proofing Co.
V 20—Vulcan Rubber Co.
V 22—Vulcanized Products Co.
V 24—Vulcanized Rubber Co.

W 2—Waitt Cement Co.
W 4—Wales Goodyear Rubber Shoe Co.
W 6—Washburn & Moen Mfg. Co.
W 8—Waterman, L. E., Co.
W10—West American Rubber Co.
W12—Western Electric Co., Inc.
W14—Western Reserve Rubber Co.
W16—Western Rubber Co.
W18—Westinghouse Electric & Mfg. Co.
W20—Whitall-Tatum Co.
W22—White, S. S., Dental Mfg. Co.
W24—Whitehead Bros. Rubber Co.
W26—Williams-Bowman Rubber Co.
W28—Wilson Tire & Rubber Co.
W30—Wire & Cable Co.
W32—Wohlberg, Richard.
W34—Woodward, F. E., & Sons
W36—Woodworth Mfg. Co.
W38—Woonsocket Rubber Co.
W40—Worthington Ball Co.
W42—Woven Steel Hose & Rubber Co.

X 2—Xenia Rubber Mfg. Co.

Y 2—Yatman Rubber Co.

Z 2—Zee Zee Rubber Co.

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THE RUBBER AGE

JULY 10, 1917 VOL. I. NO. 8

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THE RUBBER AGE

Technical Course in Rubber Manufacture

By H. E. Simmons, B.S., M.S.

Professor of Chemistry in the Municipal University of Akron

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Subjects Treated in the Course

Introduction—The Laboratories and Equipment of the Municipal University of Akron.
Section 1.—The History of Caoutchouc.
Section 2.—Rubber of the Amazon Basin.
Section 3.—African Rubbers.
Section 4.—Central American Rubbers.
Section 5.—Plantations and Their Development.
Section 6.—Discussion of Colloids.
Section 7.—The Colloidal Action of Crude Rubber.
Section 8.—Colloidal Chemistry in Rubber Manufacture.
Section 9.—Different Means of Coagulation.
Section 10.—Theory of the Constitution of Rubber.
Section 11.—Synthetic Rubber.
Section 12.—Chemical Analysis of Crude Rubber.
Section 13.—The Physical Testing of Crude Rubber.
Section 14.—Inorganic Fillers: Manufacture and Use. Use.
Section 15.—Inorganic Fillers: Their Manufacture and Use—Continued.
Section 16.—Accelerators: Their Manufacture and Use.
Section 17.—Rubber Substitutes: Their Manufacture and Use.
Section 18.—Theories of Vulcanization.
Section 19.—Methods of Reclaiming.
Section 20.—Preparation of Crude Rubber for Manufacturing.
Section 21.—The General Principles of Compounding.
Section 22.—Compounding for Mechanicals.
Section 23.—Compounding for Dipped Goods.
Section 24.—Compounding for Tires.
Section 25.—Compounding for Rubber Sundries and Hard Rubber.
Section 26.—Chemical Analysis of Cured Samples.
Section 27.—Physical Testing of Compounded Rubber.

INTRODUCTION

The Laboratories and Equipment of the Municipal University of Akron

Located in the center of the rubber manufacturing industry of the world, Buchtel College, now a part of the Municipal University of Akron, in the fall of 1908, installed among its courses the study of india-rubber and its use in industry. Dr. C. M. Knight, for thirty-eight years Professor of Chemistry in this institution, and to whom the present laboratory is dedicated, was the originator of the course. By virtue of his many years of teaching experience and his keen appreciation of the industrial demands of his city and country he had the wisdom to launch this work on the basis to insure success. He was of the firm belief that it was better to graduate a few men with a very high standard of ability than to turn out many with superficial knowledge.

In erecting a fine building the foundation must first be laid with care; so in securing an education that will permit of growth its foundations, too, must be deeply and carefully laid.

In the University of Akron course we first give one full year to the study of inorganic chemistry. The student thus becomes familiar with the great laws under which the science operates. The second year he studies qualitative analysis. Contrary to the requirements of a great many institutions, we require a full year of this work. A man has no license to be called a chemist until he is able to measure up as an analyst.

In the third year we assume that he is mature enough, has technic enough, and is sufficiently grounded in principles to carry his quantitative analysis and begin his organic chemistry. In this year he covers simply the paraffin series of hydrocarbons. At the completion of this, his foundation is laid for his rubber chemistry, for, in addition to having had his chemistry, he has also had German and French, mathematics and physics, as well as courses in English and economics. The fourth year gives him the benzene series of hydrocarbons, his rubber chemistry and advanced practical chemistry if he desires.

This high standard of study has worked out very satisfactorily, for the few men we have turned out have made good. As a result, the University is never able to supply the demand for its graduates.

The Rubber Laboratory Equipment

The rubber laboratory is equipped to carry out all of the chemical experiments required in connection with

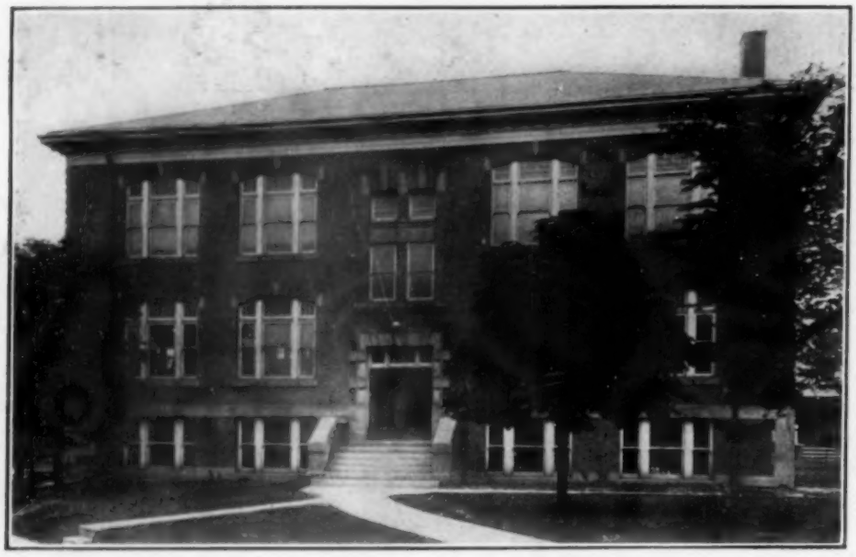


FIG. 1—THE KNIGHT CHEMICAL LABORATORY

the course. In Fig. 4 is shown our rubber washer and mixing mill which is mounted on a large concrete base and driven by a motor. This outfit was obtained from the Farrel Foundry and Machine Co., and is modern in every way. Another piece of apparatus is a steam generator with an automatic regulator which was presented to us by the Williams Foundry and Machine Co. This furnishes the steam used in our press vulcanizer, a compliment from the Firestone Tire and Rubber Co., and also our kettle vulcanizer, a gift from the Biggs Boiler Works Co. This is all shown in Fig. 5.

We also have a Tinius Olsen testing machine shown in Fig. 6.

With this outlay, we are able to carry out actual work as our men will find it being done when they step into a factory laboratory.

Brief Description of the Course

Unfortunately, in a way, a textbook can not as yet be procured covering the course as we teach it. In regard to that, however, I share somewhat the opinion of a man whom I once had occasion to tutor in another branch of industrial chemistry. After searching our library through for help, he concluded, "There is little of value in books anyway."

Our subject naturally is composed of two parts: the lecture room work, consisting of lectures, quizzes, reports by students, etc., and the laboratory work. It is, of course, only the former which can appear in this series of articles.

In the lecture room, we begin with the history of the crude rubber and then trace its development into a great industry. The different species are studied with reference to source, collection, coagulation, physical properties and use.

After some time is spent with the natural varieties, the plantations are studied. Here it becomes necessary to emphasize some of the principles of colloidal chemistry, as we are coming to realize that many of our phenomena are explained better upon that basis.

After a discussion of the construction of rubber, we speculate on the different possible methods of procuring the synthetic product. In addition, we instruct how to carry both the chemical and physical testing of the crude rubber. This work completes the first half of our year's work.

The second half is devoted to the working of this India rubber into the various articles of manufacture. Here theory is presented with the practical side as well. In connection with this lecture room work, there is running the parallel laboratory work.

Beginning with the crude rubbers we study their peculiarities and their losses on being washed, likewise the action of different solvents on them. The fractional distillation of rubber is also interesting from a theoretical point of view at least.

FIG. 2—DR. C. M. KNIGHT

FIG. 3—ONE OF THE LABORATORIES

Thorough analyses along all the different lines of work are carried out here. We are of the opinion that a chemist first of all must be an analyst and capable of doing consistent work along this line. This is accomplished in the first half year, leaving the second to study compounding and physical testing.

It should be stated here that great value to our men is obtained from frequent visits to the large factories here. After studying the washing of rubber, and carrying it out in the laboratory, it is very helpful to visit the wash rooms of two or more large concerns. This of course, applies to all divisions of the industry and, with the cooperation of the manufacturers of our city, we are able to study the

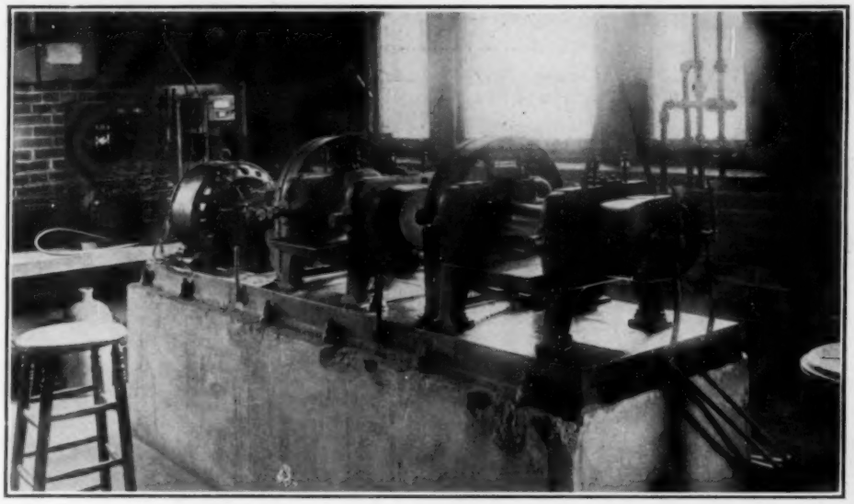


FIG. 4—WASHER AND MIXING MILL

various processes of manufacture in their factories.

Two Industrial Fellowships

Two industrial fellowships in the study of india-rubber have been established; one by the Firestone Tire and Rubber Co., and the other by the Goodyear Tire and Rubber Co. These fellowships are awarded to the graduates of first grade chemical courses anywhere. The fellow receives three hundred dollars in money from the factory whose fellowship he holds. At the end of a year he enters the employ of this company. The University gives him exemption from all fees but in return requires from him a maximum of twelve hours per week in way of laboratory supervision or correcting of note books or papers.

This is in brief an outline of our course in the chemistry of india-rubber and it is out of the experience of handling this work that I present the articles that will follow.

SECTION I

The History of Caoutchouc

Before starting this series of chapters, it seems to me both necessary and interesting to take a brief glance into history and obtain a little knowledge as to when and by whom this important article of commerce was first found. It is my purpose to deal most largely with the rubber industry as it is at the present time, yet to omit mentioning the discovery of this substance would be unfair to the pioneers, and would also render a series of articles of this nature incomplete.

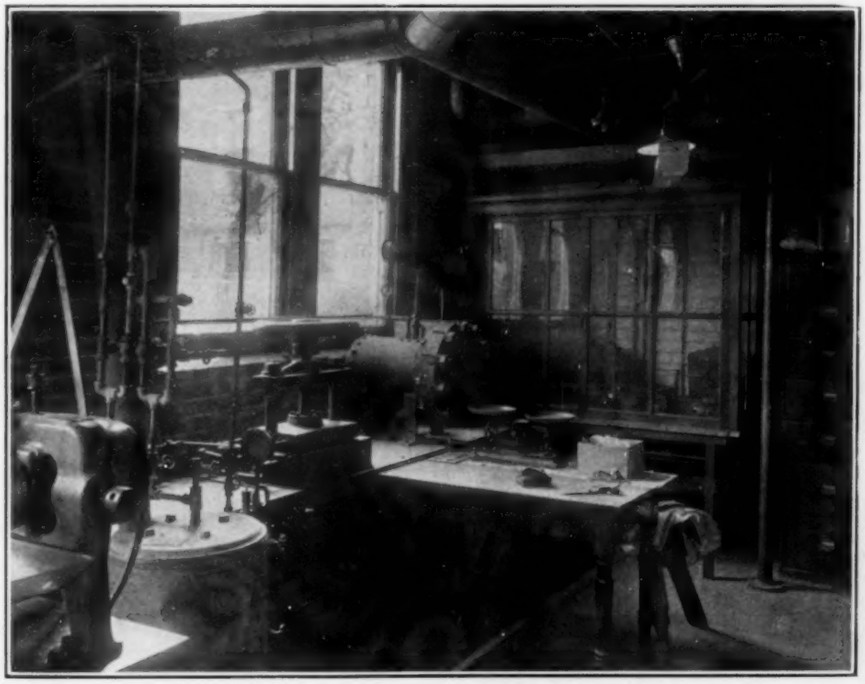


FIG. 5—THE VULCANIZING PLANT

It has been stated that the first reference to rubber occurs in the work of a Spanish writer of Madrid in 1536, but M. L. Tillier points out that P. Martyr d'Angliera in 1525 published a description of some rubber playing balls seen by him in Mexico.

Another Spanish writer describes the same article as made "from a black resin, obtained from a tree called by the natives Ulaquhuil." In this connection it will be well to state that in parts of Mexico and Central America even today the Castilloa elastica is known as the Ule tree.

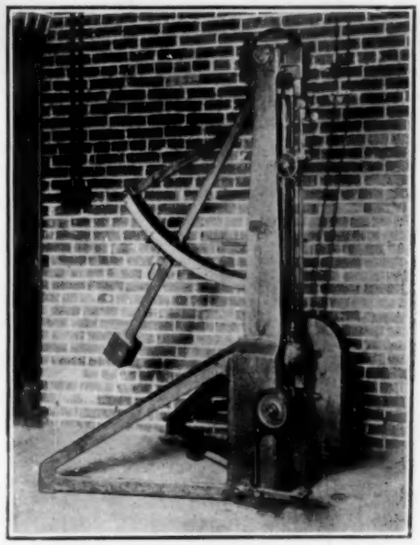


FIG. 6—TINIUS OLSEN TESTING MACHINE

According to Morris, the first record of india-rubber was made soon after the discovery of the New World by Columbus. The Old World rubbers were still unknown. Columbus, on his second voyage, noticed the inhabitants of Hayti playing with a ball made from the resin of a tree. It is interesting to note that the game which the natives played with these balls is still played in these regions and in fact, modern explorers have become aware of the presence of rubber yielding trees simply by observing that this game was being played. Antonio de Herrera Tordesillas, a Spanish historian in 1601, in his "General History of the Voyages and Conquests of the Castillians" while speaking of the conquests in Mexico, mentions certain trees which, when punctured, yield a milk which becomes converted into a gum with a very fine smell.

Father Xavier de Charleroix of the Society of Jesus, 1682-1761, describes the Batoa, a species of ball of a solid matter but extremely

" porous and light. It soars higher than other balls, falls to the ground and rebounds higher than the level of the hand which it quitted. It falls to the ground and rebounds once more although not to such a height this time, and the height of the bound is gradually diminished."

Whatever the date may be which marks the first recognition of this important article in civilization, we at least must give credit to the Spanish and Portuguese explorers of the West Indias as being the first to observe it and record it in their literature.

The French were the first to make any scientific study of rubber bearing plants. The Academy of Science of Paris in 1731 sent an expedition to South America under the guidance of La Condamine and Bougner. In 1736, La Condamine sent back to the Academy a resinous mass under the name of " caoutchoue " and this information:

" There grows in the province of Esmeraldas, a tree called by the natives of the country 'Heve'; there flows from it, by simple incision, a liquor, which hardens gradually and blackens in the air. The inhabitants make flambeaux of it, which burns very well without wicks, and gives rather of a fine light. . . . In the province of Quito, sheets of linen are coated with it, and are used for the same purpose as we use waxcloth. . . . The same tree grows along the banks of the Amazon and the Mainas Indians call the resin which they extract from it 'cahuchu' (pronounce caoutchouc). They make boots of it, which do not draw water, which after being blackened by being held in the smoke, have all the appearance of leather. They coat earthen molds in the shape of a bottle with it, and when the resin has hardened, they break the mold and force out the pieces through the neck and mouth; thus they get a nonfragile bottle, capable of containing all kinds of liquid."

He also mentions a peculiar use which one of the tribes made of this india-rubber:

" The use which is made of this resin by the Omaguas, in the middle of the American continent, on the banks of the Amazon, is still more singular; they make bottles of it in the shape of a pear, to the neck of which they attach a fluted piece of wood. By pressing the bottles the liquid which they contain is made to flow out through the fluted piece of wood, and by this means these bottles become real syringes."

That is the origin of the name given by the Portuguese to the tree which yields this resin, Pao de Ciringa (syringe-wood), and of seringueiros to the resin collectors.

At this point La Condamine had to give up his pursuit of this peculiar substance and devote his time to his own profession, for he was a doctor of medicine and an eminent naturalist. At this time he came in touch with Fresneau, the French engineer located at Cayenne, who seemed to grasp the importance of this substance and took up the work where La Condamine had abandoned it. After great labor and hardship he succeeded in finding these trees and noticing how the natives proceeded to obtain this resin, he sent the following communication to La Condamine:

" They commence by washing the foot of the tree; then they make with a billhook, longitudinal but rather oblique incisions which should penetrate the whole thickness of the bark, taking care to make them, one above another, so that the flow from the top incision falls into the one underneath, and so on until the last one at the bottom of which a leaf of the Balizier (an American reed) is placed, which is made to hold the liquid by potter's earth, so as to lead the juice into a vessel placed at the foot of the tree.

" To utilize the milky juice of the trees which I have mentioned, a mold is made of potter's earth, according to the shape of the vessel which it is intended to make, and, to hold it more conveniently, a piece of stick is inserted in the place which is not to be coated with the milky juice. An aperture is thus secured through which the potter's earth may be afterward expelled, by introducing water to soften it. Any one mold being shaped, polished, and softened with water, it is coated all over with milky juice by means of the fingers, after which this coating is exposed to a dense smoke, where the heat of the fire hardly makes itself felt, keeping constantly turning it, so that the juice may be spread equally over the mold, and taking good care that the flame does not reach it, which would cause the milky juice to boil, and thus to form small holes.

" As soon as a yellow color is seen, and this first coating is no longer tacky to the fingers, a second layer is applied, which is treated in the same way, and so on with the other coats, until it is judged to be sufficiently thick, and then it is kept longer over the flame so as to evaporate the whole of the moisture, until but the elastic resin remains. . . . With this juice and linen sheeting, tarpaulins pump hose, divers' clothing, bottles, sacks for containing campaigning biscuit etc., may be made, without fear of this material imparting any bad smell; but all of these things can only be executed on the spots where the tree grows, as these juices soon lose their fluidity."

In 1762 the French botanist Fusee-Ablet started for Guiana and two years later he published " The Flora of Guiana," and in this he described a tree which he called *Hevea Guyanensis.*

In 1798 James Howison determined the name of an elastic gum vine, the species which later on was called *Urceola elastica.* This tree was the chief source of supply from the East prior to the introduction of that from the *Ficus elastica.* It was discovered on the island of Penang. While clearing a way through the jungle with cutlasses, the blades became covered with a juice which hardened and had the appearance of india-rubber. The source of this juice was found to be a vine about as thick as a man's arm, which ran along the ground for great distances, rooted at its joints and also climbed the highest trees. It was thought to be a species of Hevea, with which it is often confused even to this day. This juice was also used by the natives to waterproof different articles.

It is reported that in 1755 the King of Portugal, having heard of the waterproofing material of the Indians, sent several pairs of his royal boots to Para in order that they might be covered with rubber.

Priestley is credited with having given this substance the recommendation to use for effacing pencil marks, and from this it was called " india-rubber."

W. H. Johnson gives us the derivation of the word *caoutchouc* as coming from *caucho,* which in turn comes from *cao,* meaning wood, and *o-chu,* meaning to run or weep.

In this course I shall use the term " caoutchoue " when reference is made to the pure hydrocarbon while india-rubber is a term for the crude product whether raw or manufactured.

When we realize that it was toward the end of the eighteenth century before rubber was introduced into Great Britain and then the wonderful advance made in this length of time, it makes it impossible for us to prophesy what the future has in store along this line.

With this as a general introduction to the course we shall proceed in the next issue to deal with the rubber of the Amazon Basin.

Book Reviews

RUBBER COMPANIES' ACCOUNTS, FOR NON-PRODUCING AND PRODUCING COMPANIES. By R. S. Stewart, C. A., (Penang, F.M.S.) and F. C. Ebbels, with a preface by Sherbert Wright, A.R.C.S., F.L.S., Editor of *The India Rubber Journal.* Published by Gee & Co., London, England.

Rubber growing demands full knowledge not only of tropical agriculture, but also of its finance. Few rubber investors have any conception of the intricacies of the accounting necessary for the plantation industry. This book goes into all these details and, besides being of practical utility to persons actually engaged in rubber planting, it should be of value to all those who in any way are interested in the subject.

STATISTICAL ABSTRACT OF THE UNITED STATES 1916. Published by the Department of Commerce, Bureau of Foreign and Domestic Commerce, Washington, D. C. 773 pages. Copies bound in paper, 50 cents each.

The thirty-ninth issue of the Statistical Abstract of the United States contains condensed statistics based on official figures published under the various laws of the United States and those of other countries referring to the following subjects: Natural resources, population, etc.; education, agriculture, forestry, fisheries; manufactures, mines, occupations, labor, wages, internal communication, transportation, merchant marine, shipping, foreign commerce, commerce of noncontiguous territory, consumption estimates, prices, money, banking, insurance, public finance, national wealth, Army, Navy, Civil Service, pensions, record of progress of the United States, etc.

How Inner Tubes Are Made

After the skived ends and the valve patch spots of an inner tube have been roughened on a buffing machine in the manner described in the June 25 issue of THE RUBBER AGE, these surfaces and the valve patches are coated with rubber solution, each coat being allowed to dry before another is applied.

By the time the last of the batch of tubes and valve patches are coated, the first treated are ready to be vulcanized together. The solution coated surfaces are brushed with sulphur chloride, and the patch is applied and rolled down on the spot prepared for it.

Fitting Valves

When the valve patches are firmly vulcanized in position, a hole is punched through their center into the inside of the tube. This hole is slightly smaller than the valve flange and has to be stretched open to get the latter into place. After this has been accomplished, the valve washer and nut are placed in position.

As the valve stem is comparatively long and necessarily threaded throughout its entire length, the process of screwing down the nut that holds it snugly in the tube would be a long one if it had to be accomplished by hand. For this reason a machine, shown in operation in Fig. 1, is used to screw down and tighten the valve nut.

This machine consists of a small electric motor, a short, two-piece shaft connected by a diminutive friction clutch, and a socket which fits correctly on valve nuts of standard dimensions. The operator starts the nut on the valve stem, then he seizes the tube with both hands, one on either side of the valve, and engages the nut in the socket at the end of the motor shaft. As the motor is revolving at about 3,000 a minute, a fraction of a second is all that is necessary to screw down the valve nut and tighten it firmly in position.

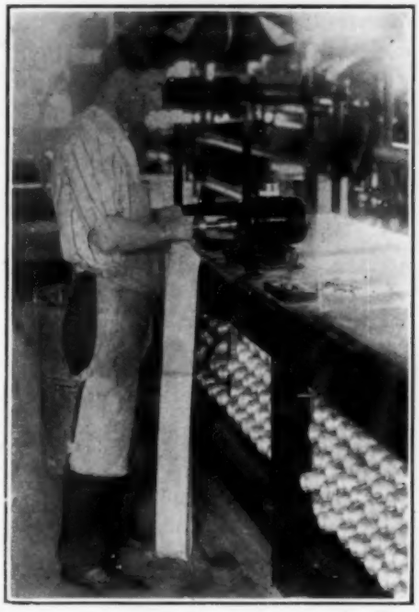


FIG. 1—FITTING VALVES

The clutch is adjusted so that it slips as soon as the nut is sufficiently tight and prevents any damage that might be caused by the rapidly revolving wrench socket.

Preparing Ends for Splicing

When the valves are in place the ends of the tubes are folded back on special sleeve like mandrels such as are visible in Figs. 1 and 2. The man in Fig. 2 is running the ends of tubes through these mandrels and folding their ends back.

Before folding back the ends of the tubes he brushes them with a soap solution so that they will slide easily together during the splicing operation proper.

As tubes are arranged on the splicing mandrels and sleeves they are placed in long special racks shown in Fig. 3 and a cementer uses a brush to give their roughened surfaces several coats of rubber cement. Each coat is allowed to dry and after the final coat is well dried, the tubes, one by one, are taken and placed in a vise where the vulcanizing "acid" is painted on their cement coated surfaces. In Fig. 4 a man wearing rubber gloves to protect his hands from the acid, is seen painting the roughened and cement coated surfaces of the ends of a tube with fuming sulphur chloride. A ventilator, not shown in the illustration carries away the fumes so that they cannot injure the man using them.

Splicing

As soon as the vulcanizing fluid is applied, compressed air is introduced between the covering end of the tube and its mandrel. Aided by the soap coating, this end of the tube slips sharply and accurately over the other end. This operation is clearly shown in Fig. 5.

The mandrel, which is slit open on one side, is then removed from the tube and a yard long strip of pure rubber tape is wrapped tightly around the splice to hold it firmly until the sulphur chloride on the rubber solution has perfectly vulcanized the ends of the tube together.

In Fig. 6 we have a clear view of this operation, also of the foot-operated vise used to hold tubes and the mandrels that have been removed from tubes that have been spliced.

FIG. 2—PUTTING TUBES ON SPLICING MANDRELS

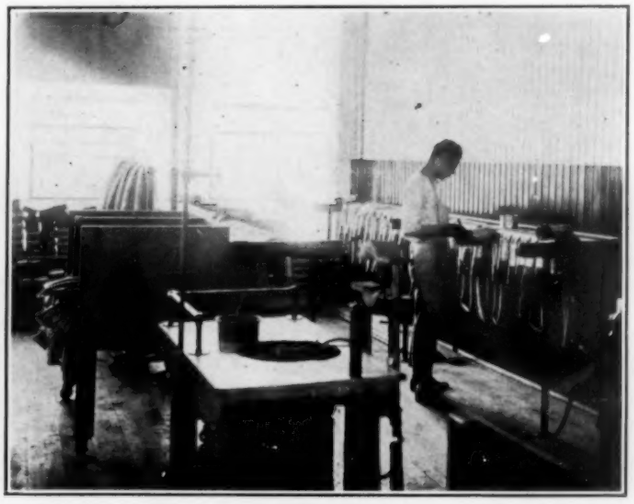


FIG. 3—CEMENTING TUBE SPLICES

FIG. 4—SULPHUR CHLORIDE IS PAINTED OVER THE CEMENTED SURFACES

FIG. 5—THE SPLICING OPERATION

Inspection

After vulcanization of the splice is complete, the strips of pure rubber are removed. The tubes are next examined, inflated and placed in a circular tank full of clear water.

A circular wire screen, hinged on one side and provided with a handle on the other, is used to force the whole of the tube under water in one operation, shown in Fig. 7.

The interior of this inspection tank is white enamel and kept scrupulously clean so that any bubble caused by the slightest bit of air escaping from the tube is instantly detected. After inspection the tubes are washed with brush, soap and water in the rectangular tank shown also in Fig. 7. They are afterwards rinsed in the enameled tank seen in Fig. 8 and allowed to dry in the rack shown in the same photograph.

FIG. 6—BINDING SPLICE WITH RUBBER TAPE

FIG. 7—TESTING FINISHED TUBES

FIG. 8—DRYING AND FOLDING TUBES

Packing

When thoroughly dry the tubes are folded in the manner shown to the left of Fig. 8, valve caps are provided and talc is dusted over the tubes, which are placed in cardboard cartons, ready for the stock room and for shipment.

PRESIDENT
LESTER D. GARDNER

THE RUBBER AGE

EDITOR
HERBERT M. WILLIAMS

Vol. I | July 10, 1917 | No. 8

BEGINNING with this issue, THE RUBBER AGE will render to the rubber industry a service which no trade paper in this line has before attempted. The Technical Course in Rubber Manufacture by Prof. H. E. Simmons, B.S., M.S., which promises to be the most complete treatise on the subject written in the English language, should prove of inestimable value to the rising young men who will avail themselves of the opportunity thus offered to become acquainted with the latest and best available data on the subject. The knowledge that they will gain will do much for the development of the industry along even greater and broader lines than it has already attained.

The time of extreme trade secrecy has passed. The common practice of a few years ago when most manufacturers tried to gain information regarding methods and processes of others by the hiring of men from rival factories is now seldom followed. It has been found that most "secrets" are common property, accepted practice.

Professor Simmons in his course will not treat of processes and methods that are secret, but will lay before the readers of THE RUBBER AGE information that it is proper they should have in order to keep in line with the rapid advances that have been made in the technology of rubber. No man is better qualified to do this work than he, for his intimate association with the industry, his standing as a practical rubber chemist, and his years of teaching the subject have thoroughly fitted him for this work.

That this Technical Course in Rubber Manufacture has met with the cordial approval of persons and firms prominent in the rubber industry is evidenced by the many congratulatory letters and by the hundreds of subscriptions that have been received.

Conscription's Effect on Rubber Factories

In a few weeks hundreds of thousands of our young men will be called to the colors. Unless exception is made to rubber workers, many of the factories and offices will lose men who will be hard to replace. The rubber industry has grown so rapidly, and most of the big plants are so new, that young men of the military age form the great majority of employes.

Perhaps there is no other industry in which there are so many unmarried men of military age as in the rubber industry. For that reason, probably no industry will suffer more from conscription. If business keeps up in its present volume, and there is no apparent reason now why the volume as a whole should be curtailed, it is incumbent on manufacturers to look to the future with an eye to providing workers to take the places of those to be called away.

Winning the War in the Air

With a practical deadlock on the Western front, with the German Navy in a position of apparent security behind a treacherous coast well protected by land and under water defenses, military authorities have expressed the opinion that the quickest and surest way to bring about a comparatively short termination of the war is through the air.

It is in the air that the Allies have already demonstrated their superiority. Seldom, it is said, do the German airplanes now cross the fighting line; they are fighting defensively over their own territory.

The proposition has been made that it might be well for America to construct a great number of airplanes and join with our Allies in completely overwhelming the German planes. That this is more than idle fancy is shown by the fact that an appropriation of $639,000,000 is being urged for the preliminary needs of a huge army aircraft establishment.

It has been suggested that this country should construct 100,000 airplanes. Should this policy be adopted it will take some time before factories in this country can be changed to make airplanes, but American ingenuity and adaptability can be counted on in time of necessity to accomplish almost anything that is required of it.

One hundred thousand airplanes would mean 200,000 airplane tires to be delivered with new machines if the ordinary two wheel landing gear should be adopted. This number does not include the many thousands of "spares" that would be purchased by the Army.

There are comparatively few manufacturers who now make airplane tires, which though of smaller size than the automobile tires, have to be very light and strong.

While airplane tires are not now made by most of the manufacturers of pneumatics, there should be no difficulty in meeting the demand when it comes. The necessary cord rubber for airplane springs, and gasoline and radiator hose can also be supplied in necessary quantity. As to "blimps," kite-balloons and other lighter-than-air craft there is no doubt but that all Government demands will be cheerfully met and that reasonable promptness in delivery can be assured.

Rubber manufacturers can be counted on to do their part in supplying all of the rubber essentials for aircraft that will be required in helping to bring the war to a successful conclusion.

War Revenue Bill Suffers Many Changes

Action of Senate in Regard to Liquor Cuts Off Revenue Amounting to $500,000—Bill Bears But Little Resemblance to House Draft—Delay of Several Weeks is Likely—Provisions for Automobile Tax—Eliminate Increase on Imports

(*Special Washington Correspondence*)

WASHINGTON, D. C., July 9.

Business must continue for a long time yet to be in a state of uncertainty as to the character and amount of taxes to be paid to the Federal Government under the new War Revenue act. The Senate Committee on Finance, after spending several weeks in consideration of an amendment to the bill as originated in the House of Representatives and passed May 23, reported the bill to the Senate on Thursday, July 5, but two days later, because of the action of the Senate in passing the amendment to the Food Control bill which proposes to prohibit the manufacture of distilled liquors, Chairman Simmons of the Committee withdrew the bill and report and had it returned to the Committee for further consideration.

The action of the Senate in respect to liquor chopped off at once a source of revenue amounting to at least $500,000,000, and the Senate Committee is now confronted with an almost complete new draft of its war revenue act, to make up for that amount.

The bill, as it was presented a few days ago, bears only a few earmarks of the House bill. That bill, however, was generally admitted when passed to be more distinguished for its deficiencies than for its comprehensive grasp of the situation. A great many changes have been made. Leading members of the Senate contend that the bill as presented is a good bill, and quite a number of Congressmen are in agreement. On the other hand, many of the Congressmen have been outspoken in objection to the changes that have been made. One of them in a public interview stated that as the bill was changed by the Senate it was a rich man's bill and put all of the burden of taxation on the poor man. One of the clauses to which reference was made was that fixing the tax on the owner of an automobile rather than on the manufacturer. The section as at present prepared by the Senate as to automobiles, reads as follows:

"That on the day this act takes effect, and thereafter on July 1 in each year, and also at the time of the original purchase of a new automobile or motorcycle by a user, if on any other date than July 1 there shall be levied, assessed, collected and paid, upon the use of automobiles and motorcycles not used exclusively for business, an excise tax at basic rates as follows: Motorcycles, $2.50; automobiles, the original listed retail price of which is not over $500, $5; original listed retail price over $500 and not over $750, $7.50; original listed retail price over $750 and not over $1,000, $10; and for each further increase of $500 or fractional part thereof of original listed retail price, an additional tax of $5.

"In the case of a tax imposed at the time of the original purchase of a new automobile or motorcycle on any other date than July 1, the amount to be paid shall be the same number of twelfths of the amount of the tax as the number of calendar months, including the month of sale, remaining prior to the following July 1.

"The tax payable in any year shall be reduced by ten percentum of its basic amount for each twelve months elapsed since the original sale of the automobile or motorcycle by the manufacturer or importer, but in no case shall it be reduced to less than fifty percentum of such basic amount."

This clause shows a return to the plan first announced by the Senate Committee in making a graduated tax on automobiles, according to their valuation rather than a straight one per cent tax as was proposed by Senator La Follette, and as was thought at one time would be the recommendation.

Extensive changes have been made in the classification of war income taxes. The Senate has reduced the percentum tax on the larger incomes, for instance, making the additional War Income Tax on net incomes between $40,000 and $60,000 eight, instead of 10 per cent, and so on up to incomes of $500,000 to $1,000,000, reduced from 41 per cent to 33 per cent.

New provisions have been made for taxes against corporations, partnerships, and individuals on excess profits, varying from 15 per cent to fifty per cent, according to the amount of such profits. Naturally the doubt has existed as to just how these taxes would apply and as to just what returns might be expected from it.

Heavy taxes are imposed on all distilled liquors, but as previously stated this tax vanishes in thin vapor if the action of the Senate in prohibiting the manufacture of liquors is to be final and decisive.

One important change which was announced by the Committee early in its consideration of the bill and which has been adhered to, is the elimination from the House bill of the clause that proposed an increase of 10 per cent on imports, and which would have included raw rubber.

The Senate has greatly increased the application of the stamp tax making them applicable not only to notes, deeds, contracts, etc., but to bank checks, drafts and certificates of deposit on all paper issued in any amount in excess of $5, the tax being a one cent stamp. Objection has been made to this proposal on the ground that many people will increase the number of their small checks so as to avoid the stamp.

Because of the many changes that have been made there is every prospect that the passage of the War Revenue bill is a matter of several weeks. It ordinarily would have to run the gauntlet of sharp debate in the Senate if it could come up for immediate consideration, but nothing positive can now be done until the Food Control bill is disposed of, and that is not a matter of the immediate future. There is a slight chance that the action prohibiting the manufacture of liquor may be reconsidered, which of course will make it unnecessary to revise the War Revenue bill. The probabilities are, however, that the prohibition measure will stand and that the Senators will have to face the large problem of increasing the revenue from other sources. The opinion is being expressed that final action on the War Revenue bill will not come until very near September.

RICHARD B. WATROUS.

Embargo on Exports

May Apply to Manufactured Products and to Automobiles as Well as to Food

(*Special Washington Correspondence*)

WASHINGTON, D. C., July 9.

The terms of the Espionage Law which provide for an embargo on exports will soon be put into effect and will quite likely apply not only to food products but to many manufactured products. Under the terms of the President's first proclamation an Export Council was created to consist of the Secretaries of State, Agriculture and Commerce and the Food Administrator. Since its organization the Council has decided upon the appointment of an advisory committee which will be composed of representative men who will be in continuous service so as to make the application of the terms of the act prompt and as convenient to the exporters as possible.

By the second proclamation, the President has declared that the provisions of the act will apply on exports on and after July 15, and he has included as the articles which may not be exported, except by license, coke, coal, fuel oils, kerosene and gasoline, including bunkers, food grains, flour and meal, fodder and feeds, meat and fats, pig iron, steel billets, ship plates and munitions.

It has been quite clear to the administration that many of the products exported to certain of the neutral countries have found their way to the enemy's country, and as it is discovered from time to time that other manufactured products that might possibly include automobiles are going to the same destination, further proclamations may be expected to apply to that.

Motorcycle Men Meet

Aim to Help Government With Uniformity and Interchangeability of Parts

(*Special Washington Correspondence*)

WASHINGTON, D. C., July 9.

Acting under the suggestion of the War Department which has been urging that parts of motorcycles for use in war be made as completely interchangeable as possible, motorcycle engineers representing almost the entire American motorcycle industry held a metting in Washington under the auspices of the Society of Automotive Engineers and in co-operation with the Automotive Transport Committee of the Council of National Defense to consider the things that might be done to establish uniformity. The engineers agreed upon numerous immediate steps toward ultimate interchangeability of parts in motorcycles for foreign use.

Standards were set for motorcycle rims for both front and rear wheels. A standard tire size was selected both for motorcycles and side cars, of the clincher type, 28 in. x 3 in. It was also agreed that all the spoke dimensions be of uniform size and that spark plugs, head lamp mounting lugs and brackets, chains, throttle control, spark control, clutch pedal, brake pedal, oil and grease cups and fittings, fuel pipe fittings and cylinder displacements be of standard size. These parts will all be brought to stated dimensions. It was also explained that no effort will be made to enforce these standards upon motorcycle manufacturers, but that the standards set up will be a goal toward which the industry as a whole can work as rapidly as possible without sharp change in the present amount of production.

Suggestions for Improved Rubber Shipping

The Rubber Growers' Association Has Given Shippers Instructions for Better Packing of Crude Rubber—An Effort Being Made to Facilitate Loading and Unloading Domestic Freight

Packing of British Grown Rubber

The proper packing of crude rubber is of special interest to American rubber manufacturers and importers. In August, 1916, the Executive Committee of the Rubber Association directed Mr. Vorhis, its secretary, to inquire of the Rubber Growers' Association, Inc., of London, England, whether or not it would be possible for crude rubber intended for shipment to the United States from the British East Indies to be packed in a cleaner and stronger manner.

The Rubber Growers' Association thereupon requested the Rubber Association to furnish them with some specific details in regard to the condition of rubber that had arrived in the United States together with any suggestions for improvement in packing that American manufacturers and importers might desire to make. At that time the Rubber Association asked American rubber manufacturers and dealers to communicate their experience and suggestions, and in response a great number of replies came from the trade, all of which were forwarded to the Rubber Growers' Association in London.

That organization took under consideration all these communications and issued to its members a circular of which a reprint is here given:

Packing of Plantation Rubber

The Rubber Club of America, Inc., of New York, which represents the principal rubber importers and manufacturers of the United States of America, has collected from its members opinions on the condition in which plantation rubber reaches consumers there, the object in view being to ascertain whether the present method of packing satisfactorily meets the requirements of the trade. The information collected has been placed at the disposal of this association and the particular attention of members is drawn to the following points.

Three-Ply Cases.—It is evident that three-ply cases are the most suitable for carrying rubber, provided they are assembled and closed strictly in accordance with the maker's instructions. Estate managers appear to think that the patent fasteners provided by the makers are not sufficiently strong and that nails must be driven in after the cases are closed in order to ensure safety of the contents. This is wrong and is responsible for serious complaints of bad-outturn, particularly when the rubber has to be opened up for inspection in London and/or New York before being sent on to the manufacturers.

Momi Cases.—Well-seasoned momi cases, if properly hooped, appear to be satisfactory but they do not stand transshipment well unless fully ⅝ in. thick after being planed (¾ in. before planing). The importance of using only cases which are sufficiently strong and well put together to ensure safe arrival of the contents does not appear sufficiently appreciated, and members are advised to pay whatever additional cost is necessary in order to secure packages that conform to requirements.

Chips and Splinters.—All the manufacturers concur in complaining of chips and splinters getting into the rubber. Estate managers realize how important it is to clean the inside of the cases thoroughly before packing, but after the rubber is packed it apparently contracts, until there is a certain amount of play inside the case which results in splinters and particles of wood fraying off during transit and becoming embedded in the rubber. These are very difficult to remove.

It is essential that the rubber should be spread evenly quite close to the sides of the case, which should contain as much rubber as can be packed without undue pressure. A suggestion made by several American manufacturers is that the cases should be lined with cheese-cloth or jackinette. The cost is about ¼d. per pound of rubber. This expedient is now under trial.

Marking.—Cases should be clearly marked: "STOW AWAY FROM BOILERS."

Copies of the letters transmitted through the Rubber Club of America, Inc., are available to members for inspection in this office.

It is in the interests of the trade as a whole that steps should be taken to remedy the defect in present packing methods. The accompanying spare copies of this circular are for transmission to your estate managers. Further copies may be had on application to me.

Yours faithfully,
A. C. READ, *Acting Secretary.*

Rubber manufacturers and dealers will note in this circular the suggestions that have been made to estate managers in regard to the packing of their rubber. This information has been in the hands of the estate managers for several weeks and all concerned will be interested to know whether or not crude rubber arriving from British possessions in the Far East shows any improvement in packing.

When replies are received from the members of the American rubber trade, the Rubber Association will again communicate with the Rubber Growers' Association outlining to them the opinions of American manufacturers and importers in regard to the efforts that have been made thus far to bring about better conditions in regard to crude rubber packing and shipment.

Facilitating Freight Service

The Railway Business Association of New York City is supplying to rubber manufacturers through the Rubber Association the model forms that are reproduced herewith for use in connection with the shipping of freight. These or similar forms are now in use by several firms, and it is believed that a more general adoption of such forms will do much to relieve the very acute freight shortage that is now existing throughout the country.

Form 1, the Inbound Loading and Detention Record, provides for a complete account of information that should be in the hands of the executives of rubber factories, as it is to their interest to facilitate this work as much as possible.

Form 2 is a suggested model letter which the president or manager of rubber companies can send to his shipping department to urge that the best use be made of available cars, that they be loaded to full capacity, and that the time of detention be reduced to the minimum.

(Model from which shipper can adapt bids)

INBOUND LOADING AND DETENTION RECORD FOR WEEK ENDING _____ 191

AT _____

1	2		3	4	5	6	7	8	9	10	11
DATE RECEIVED	CAR INITIALS	CAR NUMBER	SHIPPED FROM	SHIPPER	COMMODITY	MARKED CAPACITY OF CAR POUNDS	WEIGHT OF LOAD POUNDS	LOADED LESS THAN MARKED CAPACITY POUNDS*	CAR DETAINED FOR UNLOADING AFTER FREE TIME EXPIRED HOURS	FREE UNLOADING TIME HOURS	REASONS WHY CAR WAS NOT UNLOADED WITHIN FREE TIME

* WHERE COMMODITY IS OF SUCH CHARACTER THAT CUBICAL CAPACITY IS NOT APPROXIMATELY THE SAME AS WEIGHT CAPACITY, THE SHIPPING DEPARTMENT WILL FIND IT ADVANTAGEOUS TO DESIGNATE FOR EACH COMMODITY WHAT IS A FAIR FULL LOAD IN THIS CAR AND MODIFY THE HEADING OF COLUMN 8 SO AS TO READ "SHORT OF FULL LOAD, POUNDS."

THE REASON FOR UNDERLOADING IS FOUND IS EITHER NEGLECT OF THE CONSIGNOR OR INSTRUCTIONS BY THE CONSIGNEE TO UNDERLOAD. THE CONSIGNOR CAN OBTAIN THE HEDGE BY REDUCING CAR-LOADING TO LOAD FULLER OR BY ORDERING IN SUCH QUANTITIES THAT FULLER LOADING IS FACILITATED

FORM 1

(Model from which shipper can adapt instructions.)

"He who saves a pound of tractive power is fighting for his country and for the freedom of the world."

TO THE SHIPPING DEPARTMENT:

Our company has its "bit" to do in winning the war. We can help break car shortage.

What we can do:

(a) Get fuller carloading. The limit is 10 per cent above stencilled weight capacity.

(b) Increase excess of credits over debits. Don't use all your free time; load or unload earliest possible moment.

How we can do it:

1. Install forms similar to the attached and keep for each car loaded or unloaded a record of performance.
2. Talk often with our employes about their opportunity.
3. Report to me monthly for conference showing comparison with previous month and with corresponding month a year ago where data is available. This comparison should show average weight of carload and average pounds short of full carload in-bound and out-bound, total credits, total debits, and total demurrage, names of consignors who have habitually unloaded, names of consignees who order short carloads.
4. Write for cooperation of consignors in fuller carloading and consignees in ordering full carloads.

Yours for victory,

President.

"Waste by any one of us in any sphere is aid and comfort to the enemy."

FORM 2

Ralph Croft Removes Office

Ralph Croft, crude rubber broker, formerly of 12 Bridge Street, is now located at 72 Trinity Place, New York.

Steel Shortage May Curtail Automobile Production

No Increased Production Anticipated and in View of Unprecedented Demand General Business Advised to Go Slow on Steel Consumption or Seek Substitute—Automobile Production May be Seriously Interfered With Later by Lack of Material

Backed by a declaration that war demands for steel will increase and that the utmost we can produce will be below the requirements of ourselves and our allies, an urgent plea is made that steel be used for general business purposes only when the requirement is unavoidable. Lumber and concrete are strongly advocated instead, and there comes the intimation that unless a steel substitute is found some manufacturers, including the manufacturers of pleasure cars, may be obliged to curtail or even suspend operations during our participation in the European conflict.

The message goes to business men in the second of a series of war bulletins sent out by a committee of the Chamber of Commerce of the United States cooperating with the Council of National Defense.

Supply May be Curtailed—Even Stopped

"It should be anticipated that the steel situation which is developing with rapidity," says Waddill Catchings, of New York, chairman of the committee which issues the bulletin, "will probably make it impossible for those general manufacturers, unable to find a steel substitute, to secure adequate supplies of steel and may even make it impossible to secure any.

"No substantial increase in production is anticipated. Even maximum production from existing facilities cannot be expected because transportation, labor, and material conditions will interfere with the full operation of plants. On the other hand, indications are that the war requirements will continue to increase."

War Demands Exclude All Others

Steel is needed in war for ships, railroad cars and locomotives, rails, trucks, and containers. It must be had for shells and other munitions work—requirements large in tonnage far beyond what is generally supposed. In addition, business producing government materials and supplies, the necessities of life and the materials for producing the necessities of life, requires steel in great quantities for buildings, machinery, tools and containers. When all these requirements are met, it is said, little if any steel will be left for so-called general business.

Every effort should be made to use wood and concrete in place of steel whenever this can be done, and construction and development work requiring steel should be postponed wherever possible.

War Orders Will Come First

"Apparently little will be gained by contracting ahead for steel," the bulletin declares. "Experience today indicates that it will soon be necessary for producers of steel to ship their product where required in connection with the war rather than to fill such contracts as they may have on their order books. When the production of railroad cars and locomotives is interfered with because necessary steel is going to industries producing automobiles, steel furniture, and buildings for amusement purposes, the situation cannot be expected to continue.

"Business men will probably make their plans in the expectation that soon there will be established an order of distribution of steel, and that the wild scramble to enter orders for future delivery of steel will be ineffective. In fact it will occur to many, no doubt that failure to recognize this situation may lead to unfortunate results. In a business requiring steel, if contracts are placed for future delivery, not only for steel but for other materials, the manufacturer may find that he cannot get the steel but can get the other materials. In this case he might find that he had on hand large quantities of materials which he could not use because he had no steel."

In purchasing materials and supplies, it is argued, business men will doubtless consider the wisdom of returning, so far as possible, to doing business locally. The extraordinary service being rendered by the railroads in connection with the war will limit general transportation service and put an end during the war to the condition which has developed during the past fifty years through the prompt and reliable transportation facilities afforded by the railroads. No longer can a man in Illinois rely upon Pennsylvania as a dependable source of supply for raw materials and equipment. For many commodities the railroads can no longer spare the equipment to bring distant points into close contact. Purchase must be made near at home wherever this can be done. The preference which must be given to shipments of iron and steel will soon make this situation of daily importance.

News Items for the Rubber Industry

American Chain Company Decides to Sell Weed Anti-Skid Chains to Jobbers Only—Goodyear Protests Increased Rates Demanded by Railroads—Expect Rim Litigation to Be Taken Up Again

Weed Now Sells to Jobbers Only

The American Chain Co., Bridgeport, Conn., on July 1 withdrew its chain price lists and commenced selling its Weed anti-skid chains to jobbers only without the slightest attempt to dictate either the clientele of the latter's trade nor the prices at which the chains will be resold.

This change is a complete reversal of Weed chain policy. The company states to jobbers: "We make no prices and have none to suggest. Make your own prices," referring of course to the sale of tire chains after they have been sold by the American Chain Co.

A change had been expected for some time, but no one believed it would be so sweeping. There are no more list prices to the consumer, no trade prices to the dealer, and the sole transactions in which the company shows the slightest interest are its sales to the jobbers. It now deals only with the jobbers, who are entirely free to make their own prices to dealers, who in turn can ask what they please of the motoring public.

The effects of this change in policy have already been seen in a close shaving of prices, some quotations showing only 12 per cent advance over cost. But the possibilities of price cutting are not as great as some had hoped for, the costs of the chains to jobbers now being higher than they have been in the past. The result is that, while price fixing is left to each individual seller, the prices will not be materially less than the old ones, for the present at least, and they are likely to remain so, unless some concerns adopt the department store plan of selling a well-known article at a loss in order to attract trade. General conditions indicate that prices are more likely to rise than to fall.

Goodyear Fights Railroad Rates

The Goodyear Tire & Rubber Co., Akron, has filed complaint with the Interstate Commerce Commission against the Akron, Canton & Youngstown Railroad Co. and other railways, protesting the increased rates on pack rubber or gum compound which these roads have put into effect. The complaint charges that the increase is a violation of the act, and unduly discriminatory, in that this increase would single out the rates from Akron to all points in territory of the official classification, and between other points in official classification territory.

More Rim Litigation

While it has been generally supposed that the rim patent litigation has been ended, there still remains the question of back royalties for using the wedge type of fastening covered by the Munger patent.

From the present attitude of the Munger interests, it appears that there will probably be legal struggles to determine how much should be paid for rims that were manufactured in 1911, and the successive years to December, 1916.

The accounting of Perlman profits as a basis for the assessment of damages, which was ordered by the decision holding the Perlman rim to infringe the Munger patent, as reported in the last issue of THE RUBBER AGE, has been occasion for the Munger attorneys to insist on $1.50 a set as the proper figure. This is a figure which Perlman himself thought right, and actually collected not so many months ago from a plant that was prohibited by court injunction from making or selling them.

It is regarded as certain that the Munger vs. Perlman suit will be appealed. Should the decision of the trial court be upheld, Munger's plans can be carried out. Munger is said to figure that something like twenty companies have made rims that infringe his patent, and that the total number manufactured is about 5,000,000. It is probable that if he sues these concerns Munger will ask for $1.50 a set as a royalty.

United Motors Takes Over Perlman Corp.

The direction of the affairs of the Perlman Rim Corporation, has been taken over by Alfred P. Sloan, Jr., president of the United Motors Corporation of which the Perlman company is a subsidiary. This places the affairs of the Perlman Rim Corporation completely in United Motors hands. This step was made possible by the retirement of L. H. Perlman, as reported in the June 25 issue of THE RUBBER AGE.

Mr. Sloan has made Clarence M. Day his representative with the Perlman Rim Corporation, and he according has been elected president, thereby becoming direct successor of L. H. Perlman.

The new management took charge of the Perlman Rim Corporation on July 2. The valuable plant assets of the company are now in the hands of men who have been exceptionally successful in manufacturing and merchandising.

Items of Interest to the Rubber Trade

Heavier Freight Loadings Help Relieve Car Shortage—Morse Warns of Bitter Competition After War—Girls in Semple Factory Adopt Bloomer Outfit—Governor Whitman Thanks Enlistment Committee

Increased Loadings Reduces Car Shortage

Fairfax Harrison, chairman of the Railroads' War Board, authorizes the following:

The drive the Railroads' War Board is making to get railroads and shippers of the United States, as an imperative step in national defense, to make every freight car do the work that two did before the war, is having telling effect. Reports just received by the board indicate prompt acceptance of its suggestion that loading freight cars 10 per cent in excess of their marked capacity would be equivalent to adding immediately to the supply of available equipment about 200,000 cars.

The report of the Commission on Car Service made to the Railroads' War Board shows that one railroad in the month of April hauled 2.92 tons more per car than in April of last year, thus saving on this one road the use of 58,473 cars. In the month of May the same railroad hauled 1,414 pounds more of less-than-carload freight per car than in May, 1916. This saved 6,319 cars.

Three thousand cars of cement, coal, slate and limestone on one railroad were checked to see what progress was being made on the campaign for heavier loading of cars carrying these commodities. The result showed that practically every car was hauling more than its capacity.

Export Fight to be Hard

Export prospects after the war, with especial reference to leather and rubber goods, were considered by speakers at the "Leather and Rubber Goods Day" session of the export conference recently held at Springfield, Mass. Henry H. Morse, of Boston, indicated the difficulties to be encountered in the export of boots and shoes. He expressed the belief that after the war foreign competition would be "bitter and to the hilt," but that "the prize was worth the fight."

"Unless we can export our goods," said Mr. Morse, "we shall have over-production, factories working part time, men out of work and hard times."

John B. Maus, of Chicopee Falls, said that the key to future prosperity in the rubber goods business was the foreign trade.

"To obtain our proper place in international relations," he said, "we need not only an efficient banking system and a well equipped merchant marine, but more especially scientific commercial education."

Legislative Committee

The Legislative Committee of The Rubber Association of America, composed of Frederic C. Hood, chairman; H. Stuart Hotchkiss, George B. Hodgman, and Harry S. Vorhis, secretary, at the request of the United States Tariff Commission, has sent a circular letter to firm members of the Rubber Association relating to the Customs Administrative Act. It is part of the duties of the Tariff Commission to investigate the administration and operation of the United Customs Laws and they are now compiling and codifying Customs Administration Laws. It is desirable that the rubber industry bring to the attention of the committee any changes which might improve the present Customs Administrative Act, particularly such revisions as might benefit the rubber industry.

Bloomer Girls in Trenton Factory

Bloomer suits for girls, with girls actually in them, have appeared in Trenton, N. J., at the Semple Rubber Company's factory. These suits were not adopted to satisfy a fad or to get publicity, but because the girls have actually concluded that as a working uniform there is nothing that can approach the comfortable, roomy bloomer outfit.

For several weeks some of the Semple Company girls have had the bloomer uniform under consideration. Ten of them set the pace recently for their co-workers when they appeared in the nifty blue bloomers.

This is the first case on record in Trenton where working girls have discarded the cumbersome skirt for the bloomer.

These bloomers are one-piece garments of a medium weight blue material, with a blouse. The legs are sufficiently long to reach to about the shoe tops, where they are tied in around the ankle of the wearer.

Gov. Whitman Wires Enlistment Committee

The following telegram has been received by the Enlistment Committee of the Rubber Association from Governor Whitman of New York State, regarding enlistments in the National Guard:

"I was greatly heartened by the generous agreement to continue your patriotic recruiting campaign for our National Guard. . . . It now seems possible that it may take a little longer to fill their ranks and so I am venturing to ask and urge that your useful and business-like efforts be continued until July fifteenth unless the Guard be sooner filled."

Must Not Deduct Costs of Plants

The United States Internal Revenue Department rules that munition makers may not deduct from their reports of gross profits the cost of plants and equipment especially constructed for war contracts now completed. Buildings are declared still valuable for other purposes.

Give Dance for Red Cross

The employes of the Lycoming Rubber Co., Williamsport, Pa., recently gave a dance for the benefit of the Red Cross. It is said that the affair was a decided success.

C. J. Davol Entertains Salesmen

C. J. Davol, president and treasurer of the Davol Rubber Co., Providence, R. I., gave an informal banquet to the heads of the departments and travelling salesmen of his company at the Narragansett Hotel recently.

Stadelman Predicts Prosperity

Special Akron Correspondence

Apprehension that has unconsciously arisen concerning the extent to which the automobile and rubber industry is going to be affected by two or more years of war are discounted by George M. Stadelman, vice-president of the Goodyear Tire & Rubber Co., who has just returned from a study of conditions in Canada. He says:

Canada has gone through precisely the same conditions that now confront us, so the effect of the war there ought to be fairly indicative of what we may expect here. General business conditions in Canada are very satisfactory at the present time. After two and a half years of war Canada is this year buying 100,000 new motor cars, almost five times as many as were purchased during 1914, and an increase of 85 per cent over the normal increase for 1913 and 1914.

Our population is about fifteen times that of Canada. She has already sent 500,000 men to the front, which would be equivalent to our sending 7,500,000. Her purchase of 100,000 cars this year with one-fifteenth of the population of the United States is equivalent to our purchasing 1,500,000 automobiles, which is just about what this country will buy during 1917. Theory and prophecy are not very convincing, but here are the actual facts. The experience of Canada ought to dispel any doubts as to the stability and continued prosperity of both the rubber and automobile business.

Francis H. Appleton, Jr., is Made a Captain

The 67th Company of Infantry of the Massachusetts State Guard was recently mustered into service at Franklin, Mass., under the command of Captain Francis H. Appleton, Jr. Captain Appleton, Jr., is a son of Captain F. H. Appleton, the president of F. H. Appleton & Son, Inc., manufacturers of reclaimed rubber, with offices at Boston and New York, and factory at Franklin, Mass.

Captain Appleton, the father, is a former commander of the Ancient and Honorable Artillery Company and is a member of that organization. At a recent election of the Ancients he was appointed a flanker to the commander.

Lloyd E. Appleton, the secretary of the reclaiming company, is a member of the Home Defense League at Rye, N. Y.

A German Steamship to Carry Rubber

The German Steamship "Andalusia" which has been held at Manila since the beginning of the war is to be placed in berth from Hongkong and Nagasaki or from Hongkong or Nagasaki to carry gunnies, rubber, hides, etc., to Seattle. The ship will probably be ready to leave during the month of August, according to the Committee on Rubber of the Advisory Commission of the Council of National Defense. Inquiries with reference to freight space should be addressed to Frank Waterhouse & Co., Seattle, Wash.

U. S. Rubber Bonds Employes

The National Surety Co., for the U. S. Rubber Co., has executed a schedule bond for $5,613,000, and guarantees the honesty of approximately 2,700 of the rubber company's employes. The bond is divided into two parts, $4,800,000 covering employes in the United States, and $813,000 covering those in South America, British India, Europe and other foreign countries.

Berrodin Rubber Co. Now Wholesalers

The Berrodin Rubber Co., 713 North Broad Street, Philadelphia, Pa., heretofore jobbers and retailers announce a change in policy which will hereafter make them exclusively wholesalers.

Canadian Consolidated's New Machine Shop

The Canadian Consolidated Rubber Co. will erect a machine shop at Kitchener, Ont., to cost $40,000.

Happenings In the Rubber Metropolis

Diamond Rubber Company, Merged With Goodrich in 1912, is Revived—Firestone Club Aids Red Cross—Goodyear Branch Managers Are Changed—Van der Linde Back from Russia

The Diamond Rubber Co. is Revived

(Special Akron Correspondence)

Revival of the old Diamond Rubber Co. which was merged into the B. F. Goodrich Co., in 1912, is seen in the incorporation of the Diamond Rubber Co., as a selling company of the B. F. Goodrich Co. with H. E. Raymond as president, and H. M. Bacon as vice-president.

When the amalgamation with Goodrich took place, Diamond tires and other goods were continued and sold under their old names and trademarks though they were made by the B. F. Goodrich Co. Contracts for Diamond goods, however, were made with branch managers and not with the company. With the reorganization of the Diamond Rubber Co. a new selling arrangement will be possible and contracts with dealers will have the Diamond Rubber Co. as a corporation back of them. The Diamond Rubber Co. will be similar to the B. F. Goodrich Rubber Co. which is a selling company for the B. F. Goodrich Co., but differently incorporated and organized.

Operetta at Firestone Club

(Special Akron Correspondence)

Dancing and singing Chinese mandarins made an eloquent appeal for funds for the Red Cross in the two-act operetta, "Little Almond Eyes," which was given by Firestone men during the Red Cross campaign. Principals and chorus were compelled to repeat numbers again and again. Miss Jayne Whitmyer as "Little Almond Eyes," the chosen bride of the Emperor; Miss Thora Few, as "Miss Lotus Leaf"; Herbert Arnold Smith, as "Wang-Ho," the gallant captain of the guard, the Almond Eyes' sweetheart; G. W. Curtis, as the much married Emperor; Robert M. Bisbee, as pompous master if ceremonies, "Ping-Po," sung their way into favor with tuneful duet, trio and quartet numbers. Several hundred dollars were added to the Red Cross cause.

Goodyear Announces Changes

Special Akron Correspondence

The Goodyear Tire and Rubber Co. is announcing the following changes in branch managers:

B. S. Waterman, formerly branch manager at Boston, Mass., has been placed in charge of the solicitation of manufacturers' business in all departments for the New England district. C. B. Peschmann, in charge of the Goodyear sales school at Akron, becomes manager of the Boston branch. K. H. Dresser, formerly manager of the Springfield, Mass., branch, has been transferred to Akron to succeed R. E. Lane. Edward Lingerfelder, of the Los Angeles branch, has resigned to go into business himself as a tire dealer. George Bellis has advanced from the position of manager at Sacramento to manager at Los Angeles, succeeding Lingerfelder. C. B. Reynolds, formerly manager at Tacoma, Wash., is now manager at Sacramento. A. E. Patterson, former salesman in Portland, Ore., is now manager at Tacoma, Wash.

Kennedy Makes a Change

D. J. T. Kennedy, formerly advertising manager of the Swinehart Tire & Rubber Co., Akron, O., has been appointed to a similar position with the Mason Tire & Rubber Co., Kent, Ohio.

Van der Linde Returns from Russia

Special Akron Correspondence.

Victor Van der Linde, special agent of the B. F. Goodrich Co., returned from Europe recently after thrilling experiences of passing through the whole Russian revolution and of being chased by submarines in the North Sea.

Mr. Van der Linde mingled with the crowds of Petrograd throughout the days of the revolution, wearing the badge of the people for protection. He declared, in contradiction to other published stories in America, that the revolution had been a very bloody one and that thousands of the military police had been killed.

A submarine rained shells on the vessel on which Mr. Van der Linde was traveling from Sweden to England. Many of them struck the ship and it was only saved by a smoke screen and the fact that the wind happened to be in the right direction.

Goodrich Has 3,000 Athletes

Special Akron Correspondence

A two-weeks' campaign for members of the Goodrich Athletic Association has just been brought to a successful close by James O'Morrow, of the advertising department. The association now has approximately 8,000 members among the employes of every department of the big factory.

The Goodrich Athletic and Field Association is a democratic organization formed some time ago to further all branches of recreation among Goodrich employes. Both men and women are members. At the Goodrich Athletic Field a new clubhouse has been completed which affords comfortable quarters for those participating in athletics at the field. A large roomy veranda with comfortable chairs, two reception rooms, ladies' and men's rest rooms, both equipped with shower baths and ample locker space, provide ideal accommodations.

Amazon Installs New Laboratory

The Amazon Rubber Company has installed a complete, new, up-to-date chemical laboratory in its plant at Akron for the purpose of making exhaustive experiments in rubber along new lines, as well as to further protect, if possible, its tires and tubes. H. L. Arbogast has been given charge of the department.

Portage Opens Branch

The Portage Rubber Co., Barberton, Ohio, has opened offices and distributing rooms at 745 Mission Street, San Francisco, Cal. This office, under the management of B. J. Wildman, is for the distribution of the company's product on the west coast.

Financial Activities On Confident Basis

Portage Rubber Common Stock is Placed on 12 Per Cent Dividend—Mason Directors Clean Up Back Dividends—Goodyear Continues High Earnings—Hood Offers New Stock

Portage Common on 12 Per Cent Basis

Special Akron Correspondence

Portage rubber common stock was put on a 12 per cent dividend basis early this month when directors declared a three per cent quarterly dividend payable Aug. 15, on stock of record Aug. 5. This action was taken in view of the fact that profits for the first half of this year are higher than profits for all of last year and sales for the first half of this year nearly equal the entire sales of 1916. Fewer than 200 shares of preferred stock are outstanding as investors have taken advantage of their privilege of converting it into common stock. A quarterly dividend of 1¾ per cent was paid on July 1 to stock of record June 20.

Mason Pays Back Dividends

Back dividends on the cumulative preferred stock of the Mason Tire & Rubber Co., Akron, Ohio, has been cleaned up to January 1 by action of the directors. The latest, payable at once, is for payments outstanding from July 1, 1916, to the first of this year, previous instalments having been taken care of about a month ago. It is anticipated that within 60 days a further dividend for the first half of the present year will be declared.

Goodyear Earnings

(Special Akron Correspondence)

Goodyear Tire and Rubber Co. earnings for the first half of the year were $4,706,493 or at a rate of over 46 per cent on the outstanding common, according to figures given out by Borton & Borton, brokers. For eight years the Goodyear has paid dividends at the rate of 12 per cent a year and stock dividends for the period have averaged 52½ per cent. Sales for June set a new high record of $11,500,000, according to Borton & Borton's estimates.

Hood to Double Preferred Stock

It is understood that the new issue of preferred stock of Hood Rubber Co., Watertown, Mass., will amount to $2,250,000, thus bringing the total amount outstanding up to $5,000,000, which the stockholders will be asked to authorize. This new stock will be offered to preferred shareholders at the ratio of 3 1-3 new shares for each 10 now held, but in order to make even shares stockholders will be allowed to subscribe for additional fraction. Thus a ten shareholder will be allowed to subscribe for four shares of the new stock. The subscription price to stockholders will be $100 per share.

News of the Tire World

Firestone Introduces "Super-Size Cord" Tires—Goodyear Offers Wheel Sets—The Archer Cord Tire—Mason Makes a Ribbed Tread—Goodrich Out of Racing—Amazon Opens New York Office

Firestone "Super-Size Cord" Tires

Expanding the over-size idea to include the cord tire, the Firestone Tire & Rubber Co., Akron, Ohio, after long painstaking experiments and tests, has produced and

is offering on the market a new cord tire called the Firestone Super-Size Cord. The cords in this tire are laid diagonally and, as indicated by their name, the tires are of unusually large size, a 34 x 4 in. casing, for instance, being about ½ in. larger than the ordinary 34 x 4 size.

The Firestone Super-Size Cord tire is built with two types of treads. For rear wheels the "Skidless Double F" is provided. The tread projections in this type are angled against skidding in any direction. Approved front wheel equipment is provided in the "Triple Tread," which has a grooved surface.

Goodrich Out of 1917 Racing

The B. F. Goodrich Co., Akron, Ohio, has announced its retirement from automobile racing during the 1917 season. Due to consideration of serious obligations to the Nation, the company believes it should retire from automobile racing and concentrate on the needs of the country.

Cleveland Standard Has Los Angeles Branch

The Cleveland Standard Tire & Rubber Co. has established a new salesroom at Pico and Hill Streets, Los Angeles, Cal.

Tongemon Vulcanizing Outfit

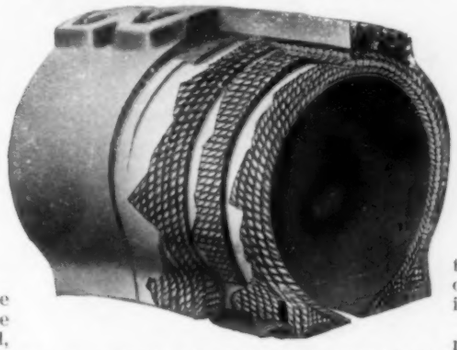
A lady or a child can repair an inner tube in five minutes at any time or any place with a Tongemon vulcanizing outfit, according to the Tongemon Vulcanizer Co., 626 Plymouth Building, Minneapolis, Minn.

The name explains the way the work is done: you simply "Tong Them On"; no skill, no cement, includes a nickel-plated vulcanizing tong, a large copper heating pan, detachable, nine small and three large quick cure gum patches, nine small and three large vulcanizing fuses and a piece of sand paper.

The Archer Cord Tire

A new type of hand-made cord tire which is being manufactured and marketed by the Archer Cord Tire & Rubber Co., Minneapolis, Minn., embodies several new features, notably double beads.

Cables of cord are used in its construction, and are applied in two transversal plies, and one longitudinal or locking ply. Each ply of transverse cords is separated from its neighbor by a strip of rubber



which prevents chafing between them, and each has its individual bead, being locked around a cable of high carbon steel wire and imbedded in hard, tough rubber. Ample locking surface is provided to insure against cutting the cords under strain, while the double beads hold the casing rigidly on the rim. The longitudinal ply of cords, that runs in the same direction as the traction stress, distributes this stress throughout the whole tire, a feature which should be a big factor in giving long life to the tire. The construction of the beads should do much to prevent pinching of inner tubes. Tough, wear-resisting treads of the ribbed or non-skid types are applied over this carcass.

Adjustments on The Archer Cord Tire are made on a basis of 6,000 miles.

Johnson Succeeds Wills

W. A. Johnson has become office manager of the automobile tire department of the B. F. Goodrich Co., Akron, Ohio. He was assistant to A. J. Wills, whom he succeeds. Mr. Wills retired to take up special duties and will be associated with H. C. Miller, director of tire sales. Mr. Johnson was at one time general sales and advertising manager of the Pierce Cycle Co., Buffalo, N. Y.

Amazon Opens New York Office

The Amazon Rubber Company has opened an office at 2176 Broadway, New York City, for the purpose of carrying a stock from which to supply their Eastern dealers. No tires will be sold direct to consumers. Owen Moynihan, eastern district manager, is in charge of the office.

Marathon Tires in South America

In Venezuela the president of the republic, as well as army officers, use the Marathon tires exclusively on their automobiles, according to J. Nazeley, manager of the export department of the Marathon Tire & Rubber Co., Cuyahoga Falls, Ohio, who has recently returned from Caracas. He states that the fire department of that city is also equipped with Marathons. A steadily increasing South American business is reported.

Goodyear Offers Wheel Sets

Straight-side tires in either cord or fabric types have certain marked advantages over other kinds of tires. They are easier to change and are said to provide more comfort and mileage than clincher tires. Heretofore the advantages of such tires have been available only at great expense

to owners of small cars wearing regular clincher rims taking thirty and thirty-one inch tire sizes.

The Goodyear Tire & Rubber Co., Akron, Ohio, has overcome this difficulty by designing and marketing a substitute set of wheels to replace those that are standard on such cars as the Maxwell, the Chevrolet 490, the Buick 4-34, the Overland 75-B, and the Ford. The Goodyear wheels are of straight-grain hickory and come in the natural wood finish. For

Fords and the small Chevrolet, a set of wheels with a regular detachable two-piece rim is furnished, strong and light. The side-ring of the rim lifts out, allowing quick and easy removal and replacement of the tire. For these makes and the small Buick, the Overland, and the Maxwell, a set of wheels is also furnished that has demountable rims, fitted with detachable rings.

Installation of the new wheel sets is said to be a comparatively simple process, the regular hub caps, plates, bearings and fittings that are already in the car being utilized. All wheel sets are size 30 x 3½, those with detachable rims only selling at $18 a set of four; the demountable type selling at $25 a set, including one extra rim.

Winans Supervisor for Ajax

E. D. Winans has been appointed supervisor for the Ajax Rubber Co., at Boston, Mass.

American Rubber Patents

ISSUED JUNE 12, 1917

1,229,244—To George P. F. Eckert, Wilkes-Barre, Pa. Tire Protector.

1,229,264—To Vergil Hensley, Vallejo, Cal. Pneumatic Tire.

1,229,265—To John J. Heys, Lynn, Mass., assignor to United Shoe Machinery Co., Paterson, N. J. Sole Gage for Boots and Shoes.

1,229,284—To Arthur B. Kempel, Akron, Ohio, assignor to The B. F. Goodrich Co., New York. Porous Rubber Fabric and Method of Producing Same.

1,229,368—To Arthur G. Wilson and Carl Oscar Oelson, Valley City, N. D. Winding Attachment for Vehicle Wheels.

1,230,068—To Sterling Elliott, Newton, Mass. Apparatus for Waterproofing Sized Sheets.

1,230,071—To Lewis E. Hawk, Chicago, Ill., assignor of one-third to Earl R. Kilpatrick, Chicago, Ill. Pneumatic Tire Alarm.

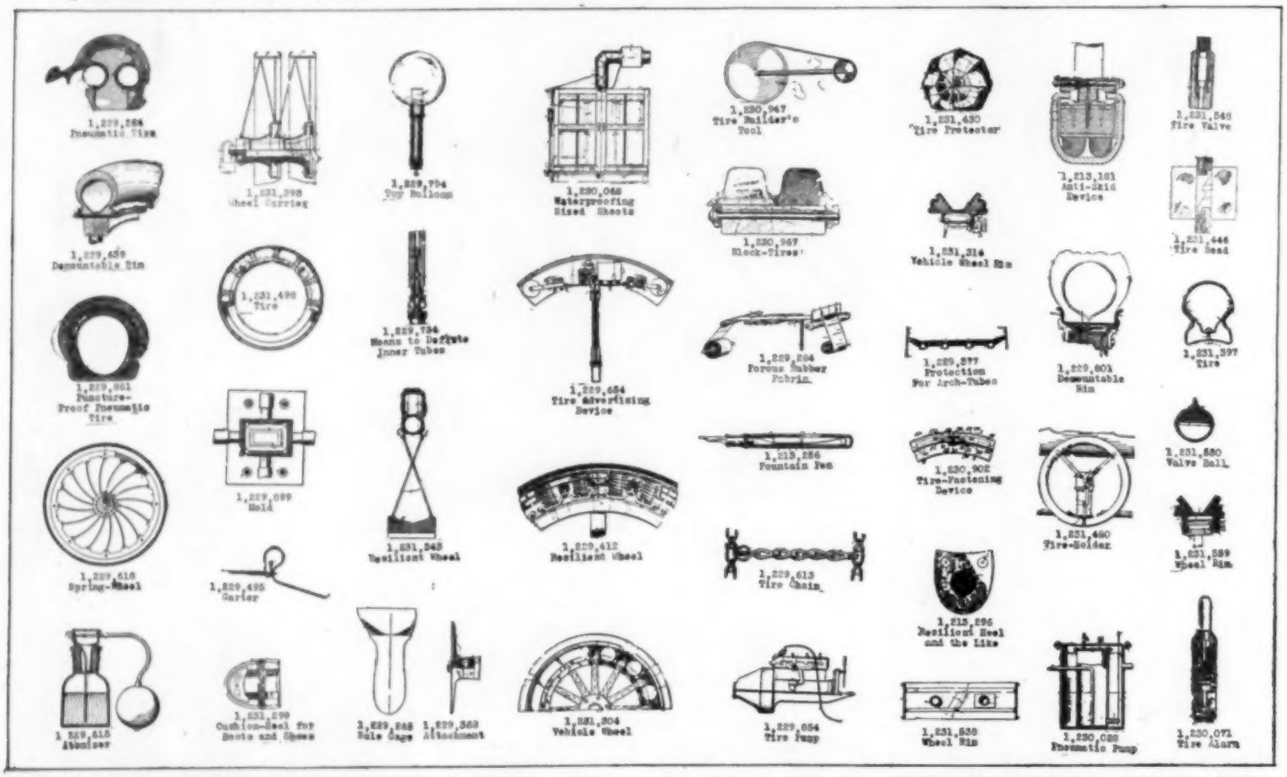
ISSUED JUNE 26, 1917

1,230,902—To Frank P. Johnson, Danville, Pa. Tire-Fastening Device.

1,230,947—To William Thompson, Detroit, Mich., assignor to Morgan & Wright. Tire-Builder's Tool.

1,230,967—To Charles B. Whittelsey, Hartford, Conn., assignor to The Hartford Rubber Works Co. Manufacture of Block-Tires.

1,213,181—To George H. Martin, Newton, Mass., assignor of one-half to Franklin E. Huntress, Newton, Mass. Antiskid Device.



1,229,377—To LeGrand Parish, Mountainview, N. J., assignor to American Arch Co., New York. Protection for Arch-Tubes.

1,229,412—To Le Roy B. Carris, Clay County, Iowa. Resilient Wheel.

1,229,485—To W. G. Lindsay, Caldwell, N. J., assignor to The Celluloid Co., New York. Process of Making Plastic Compositions.

1,229,495—To Walter Mateer, Mansfield, Ohio. Garter.

1,229,613—To Chauncey W. Hodges, Grand Rapids Mich. Tire Chain.

1,229,615—To James J. Holland, Philadelphia, Pa., assignor of one-half to George H. Killian, Philadelphia, Pa. Atomizer.

1,229,618—To Guy Hunter, Billings, Mont. Spring-Wheel.

1,229,639—To Horace Mote, Cleveland Ohio. Demountable and Separable Vehicle Wheel Rim.

1,229,654—To Stoyan K. Radkoff, Detroit, Mich. Tire Advertising Device.

1,229,724—To Etienne De Mceus, Beacon Falls, Conn., assignor, by mesne assignments, to the Beacon Falls Rubber Shoe Co., Boston, Mass. Vulcanized Rubber and Process of Producing the Same.

1,229,734—To Henry North Eversole, Hugh R. Cawthon and Henry Isaac Owen, Fulton, Mo., said Cawthon and said Owen assignors to said Henry North Eversole and Frank R. Eversole, St. Louis, Mo. Means to Deflate Inner Tubes.

1,229,794—To Arthur Salzer, New York. Illuminated Toy Balloon and Lighting Effect.

1,229,801—To Amos H. Smith, New York. Demountable Rim for Vehicle Wheels.

1,229,854—To John W. Aker, Lancaster, Ky Tire Pump.

1,229,861—To Gustav Auberlin, Vallejo, Cal. Puncture-Proof Pneumatic Tire.

1,229,899—To James Darling, Kenova, W. Va. Mold.

1,229,964—To Siegmund Jacobs, Cicero Ill., assignor of one-third to Chas. Petrasek, Cicero, Ill. Liquid Coating Composition.

1,230,028—To Edward E. Rardon, Hamilton, Kans. Pneumatic Pump.

1,213,256—To Monroe E. Heilbrun, New York., assignor to Gem Fountain Pen Corp. Fountain Pen.

1,213,296—To Augustus F. Priest, Oak Park, Ill. Resilient Heel and the Like.

1,213,299—To Max Rieckmann, Springfield, Mass. Cushion-Heel for Boots and Shoes.

1,231,304—To Edward C. Sendelbach, Cincinnati, Ohio. Vehicle-Wheel.

1,231,314—To James H. Wagenhorst, Akron, Ohio, assignor, by mesne assignments, of two-fifths to The B. F. Goodrich Co., New York; one-fifth to The Goodyear Tire & Rubber Co., Akron, Ohio, and one-fifth to the United States Tire Co., New York. Vehicle-Wheel Rim.

1,231,343—To William J. Faber, Oneida, N. Y., assignor of one-half to Christian C. Faber, Brooklyn, N. Y. Resilient Wheel.

1,231,393—To Fred Gardner Liady, Fullerton, Cal. Wire-Wheel Carrier for Automobiles.

1,231,397—To Tom S. McGehee, Lockney, Tex. Vehicle-Wheel Tire.

1,231,430—To John W. Rooney, Heriot, New Zealand. Protector for Motor-Car Tires.

1,231,446—To William C. Stevens, Akron, Ohio, assignor to the Firestone Tire & Rubber Co., Akron, Ohio. Tire Bead.

1,231,480—To Keith A. Bower, Shelburne, Nova Scotia, Can. Tire-Holder.

1,231,498—To Carl F. Craig and William Freeman, Pottsboro, Tex. Spring-Tire.

1,231,530—To Fred Thomas Roberts, Cleveland, Ohio, assignor to the Paramount Rubber Co., Cleveland, Ohio. Valve Ball.

1,231,538—To James H. Wagenhorst, Akron, Ohio. Vehicle-Wheel Rim.

1,231,539—To James H. Wagenhorst, Akron, Ohio, assignor, by mesne assignments, of two-fifths to the B. F. Goodrich Co., New York; one-fifth to the Goodyear Tire & Rubber Co., Akron Ohio, and one-fifth to the United States Tire Co., New York. Vehicle-Wheel Rim.

1,231,548—To Eugene V. Myers, East Orange, N. J., assignor to A. Schrader's Son, Inc., Brooklyn, N. Y. Tire-Valve.

Recent Incorporations

Tennessee Tire & Supply Co., Knoxville, Tenn.; Capital, $10,000; To sell gasoline and tires; Incorporators: Chas. W. Parker, A. C. Mahan, Lee M. Ross, W. L. Smith, and J. J. Parker.

Erie Tire & Rubber Co., Wilmington, Del.; Capital, $10,000,000; To manufacture, buy, sell and deal in and with automobiles and supplies and supplies for same, druggists' supplies, including rubber goods, etc.; Incorporators: A. W. Pesey, E. G. Adams, H. Bonsall, all of Wilmington.

Goodyear Waterproof Co., New York; Capital, $5,000; To manufacture raincoats; Incorporators: Barney Kimmel, Abr. Newman and Alexander Weidman.

Endurance Tire Sales Co., New York: Capital, $10,000; To manufacture tires; Incorporators: John Burlinson, Philip R. Straus and J. Stuart Eakin.

Atlanta Tire Rubber Co., New York; Capital, $1,000; To manufacture tires; Incorporators: C. A. Weldon, Sydney Berheim and Harry Jacobson.

S. & S. Rubber Co., Inc., New York; Capital, $5,000; Incorporators: William Reisfeld, G. A. Cymberg and Leo Kraus.

Old Hickory Tire Co., Dover, Delaware; Capital, $500,000; To manufacture tires; Incorporators: C. H. Jones, W. I. Lofland and Geo. W. Morgan.

Double Mileage Tire Co., Houston; Tex.; Capital, $5,000; Incorporators: J. N. Bolton, H. H. Rankin, F. H. Spiler.

Robert Cartmell Promoted

Robert Cartmell, who has made an enviable record in the Los Angeles branch of the Kelly-Springfield Tire Co., has been promoted to a more important post at the general sales office of the company in Cleveland, where he has been placed in charge of the sales of solid truck tires. He now comes directly under the wing of General Sales Manager Otis R. Cook.

Goodyear Opens New Service Station

The Goodyear Tire & Rubber Co. has opened a new service station and salesrooms at 218 West Willow Street, Syracuse, N. Y. Manlius Orr, formerly of the Charlotte, N. C., branch of this company, has been placed in charge of this branch.

Market for Manufactured Rubber Goods

NEW YORK, July 10, 1917.

So far as general activity in the rubber business is concerned there is never heavy buying at this season of the year. Prices of practically all goods are tending to higher levels.

MECHANICAL GOODS

There is little new to report from the mechanical goods trade. Business continues moderately active, the volume of sales being generally considered as good for the season. There is no certainty regarding Government needs and how they will be contracted for. Prices continue to point upwards.

TIRES

Reports from the tire trade vary; some claim more business than ever before in their history, others complain of a general retrenching policy among car users. The general impression is that dealers, as well as users, laid in unusually large supplies prior to the price increases in the early months of the year and that much of these stocks remain to be moved and to be consumed.

Further rises of tire prices appear to be likely though none can be announced at this writing.

It appears that many motorists are practising greater economy than heretofore, for tire vulcanizing and repair shops report the best business they have had since the days of hundred-dollar tires.

SOLES AND HEELS

The demand for soles and heels appears to be impossible to satisfy, for all manufacturers of these report being behind on orders and to be working full time with all the help they can get.

FOOTWEAR

The shortage of skilled labor is still the chief source of worry among manufacturers of rubber footwear, all of whom report that they could dispose of twice as many boots and shoes as they can produce. Shipping facilities and certain raw materials are also sources of trouble; the former is helping to make deliveries slow and customers dissatisfied; the latter are boosting up the cost of production.

DRUGGISTS' SUNDRIES

The druggists' sundries trade is moderately active, the rush season is rapidly approaching and is expected to be a record one. Outside of important Government business, there will be a big civilian demand. People having relatives at the front are sure to purchase large quantities of goods suitable to making trench life less uncomfortable, and druggists' sundries are foremost among this class of articles.

Retail sales of bathing caps are unprecedented and the factories expect large orders when wholesale buying starts in.

Like all other lines of rubber goods just now, druggists' sundries are harder to turn out in quantities than they are to sell and this it is thought that this condition will continue during the coming season, when enlistments and conscription will further reduce the supply of skilled and unskilled labor.

The druggists' sundries season does not usually open until the latter part of August, and although some manufacturers already report good sized orders, the majority finds that buyers are wary of taking premature steps. The retail trade is careful about taking in any substantial stock, and jobbers are of a nature even more careful than the retailers are. Finding a hand to mouth policy at present in vogue with their customers, jobbers are not disposed to overload themselves, and consequently it is probable that the wholesale buying season for druggists' sundries will be late in starting this year. It is doubtful that the market will become lively before the middle of September.

Druggists' sundries prices are not now high, considering the constantly increasing cost of all items of production, with the exception of crude rubber. Labor, chemicals, fillers, pigments, sulphur, coal, fabrics, and packing materials, have greatly risen in cost since last season, yet the prices of the manufactured goods—due to increased production—have not gone up proportionately.

The Fabric Market

NEW YORK, July 10, 1917.

The 1917 cotton crop, as forecasted by the Department of Agriculture, will amount to 11,633,000, equivalent to 500-pound bales, or about 183,000 bales more than were produced last year, and 441,000 bales more than in 1915. The crop estimate is 4,500,000 bales less than the record produced three years ago.

The condition of the growing crops on June 25 was 70 per cent of normal, as compared with 69.5 on May 25, this year; 81.1 on June 25, last year, and 80.0 the average condition for the last ten years for that date.

An important influence which has held the acreage down has been the labor problem. In all the States east of the Mississippi River, there has been a heavy exodus of negro laborers. Several hundred thousand have deserted the farms for the industrial centers of the Northern and Eastern States where higher wages prevail.

Heretofore there was usually a surplus of farm and industrial labor in the South, while now there is a shortage. As a result much land ordinarily planted in cotton is this year turned over to other crops requiring less cultivation and hand-labor.

The high prices prevailing for food, feed and fertilizers has also been a factor in reducing acreage. The slogan "The South must feed itself" has had its effect and many farmers who for years have planted cotton to the exclusion of most other crops are now raising grain.

The cotton market continues to be small and irregular. The rapid fluctuations that often are experienced creating but little excitement.

On July 6, members of the New York Cotton Exchange unanimously voted in favor of an amendment to expel any member "for any conduct detrimental to the best interests of the Exchange or to the welfare of the United States."

The closing prices, July 9, follow:

	July 9, 1917.	July 7, 1916.
July	26.67a26.69	12.86a12.87
Aug.	26.57 bid	12.88a12.89
Sept.	26.27 bid	12.97a12.98
Oct.	26.12a26.17	13.01a13.02
Nov.	26.16 bid	13.08 bid
Dec.	26.30a26.35	13.18a13.19
Jan.	26.39a26.40	13.30a13.21
May	26.57 bid	13.39a13.40
May	26.06 bid	13.56a13.57
Market	Steady.	Steady.

A telegram to the Department of State from the consul general at London, says that further regulations in the cotton trade are imposed by a new defense of the realm order, dated June 28, and by virtue of which "no person shall, without license from the board of trade, purchase raw cotton, nor shall offers be made to sell cotton licenses, in accordance with stated conditions."

The conditions referred to may include conditions as to maximum price, provided that any price so fixed shall not apply to the sale of any particular parcel of raw cotton by a person who had previously entered into a contract for purchase thereof so as to reduce selling price of that parcel below the cost incurred by that person in purchasing the cotton and bringing it to the United Kingdom, together with such margin to cover incidental expenses and profit as the board of trade may think reasonable.

EGYPTIAN COTTON

Advice by mail from Alexandria, dated May 25, reports the futures market there to be quiet with prices practically unchanged. The spot market has not been very active, owing to shortage of freight and exporters are not anxious to accumulate stocks.

ALEXANDRIA STATISTICS FOR THE WEEK ENDING MAY 25, 1917.

	Arrivals. Cantars.	Exports (Bales). England.	Continent.	America.	Exports, Total Stock, Cantars.	Cantars.
This week	9,341	2,072	2,887	.....	37,324	842,505*
Same week, 1916	9,934	1,187	5,454	983	58,041	404,453
Same week, 1915	18,544	3,152	1,530	916	42,453	1,405,415
Since Sept. 1, 1916	4,974,424	307,434	108,604	128,245	4,156,919	.....
Same time, 1915	4,537,928	307,496	171,944	181,795	5,023,805	.....
Same time, 1914	6,222,187	322,045	264,310	149,719	5,583,072	.....

* 68,000 Cantars to Japan, via Port Said, deducted.

With regards to the 1917 crop, in Upper Egypt a delay of 10 or 15 days in the progress of the crop compared with last year is reported. This is attributed to late sowings, unsettled conditions and cool nights during the latter part of April and the beginning of May. If South winds continue considerable damage is predicted. In many districts there are complaints as to the quantity of water available during the working term.

The Government in its desire to encourage cultivators to sow land in cereals has carried out a vast system of new irrigation canals in the Southern provinces by which the areas of these basin lands will be irrigated. This new source of demand on the Summer water supply of the Nile is responsible, to some extent, for the unfavorable rotations imposed on the cotton crops.

As regards the acreage, it is estimated to be slightly over that of last year: many landowners seeing the high prices of cotton have sown extra areas on the lands from which beans and wheat have just been harvested.

In Lower Egypt there is nothing new to report, the crop is progressing normally.

SEA ISLAND

From surveys made by recognized authorities on the subject, it appears that the 1917 Sea Island cotton crop can be expected to be as large as that of last season, and this notwithstanding the fact

that some are predicting a decrease of 25 to 50 per cent.

The acreage planted in Sea Island is larger than last year's. A few counties report a reduction, but this is much more than offset by the increase in other counties, particularly in Florida. Almost every county in the Sea Island belt in Florida reports an increase of from 10 to 30 per cent, and there is even some Sea Island planted in counties which have never before raised cotton. The counties reporting a reduction are chiefly in Southwest Georgia, where the greatest damage by boll weevil are to be expected.

The quantity of fertilizer used this year will average about the same as last year. The grade, however, is poorer than it was last year, when it was certainly poor enough in potash—a very necessary ingredient in the cultivation of cotton in sandy fields.

The present condition of the crop, generally speaking, is fair, Although planted early, the cool spring has retarded the growth. The boll weevil has already made its appearance in almost every county in the Sea Island belt. Most reports are that so far they are not numerous. A few counties, however, seem to be badly infested. A few counties near Savannah have not yet discovered the pest.

Any number of things may happen between now and harvest, but in view of the above, with good weather conditions prevailing from now on, a fair-sized crop can be expected, a crop probably larger than that of last year. Whether a crop of 60,000 bales or of 125,000 bales is harvested will now principally depend upon what the boll weevil does.

YARNS

Except for purchases of coarse counts, there is little activity in cotton yarns. Most of these yarns are for Government duck contracts and are on a fixed price basis. There has been, however, increased interest shown by manufacturers operating on civilian contracts, but the difficulties found in placing yarn orders is limiting buying to a very narrow volume.

Prices on yarns for civilian purposes vary materially and range of from 2 to 3c. a pound on similar counts and varieties are not uncommon. Most of these prices, however, are nominal and few are confirmed by sales. Trading is of a very spotty character and there is a marked disinclination on the part of most spinners to accept any volume of new business.

Cotton yarn dealers do not show inclination to advance prices as rapidly as spinners. The prices asked by many spinners are prohibitive so far as immediate trading is concerned.

FABRICS

Cotton goods markets are quieter with values very firm. Many cotton manufacturers say that they are unable to hedge on cotton purchases in ways that are satisfactory to them, one difficulty being the high margin that must be provided, another being the unwillingness of some cotton houses to trade for future delivery under present conditions.

The impressive feature of the market is the volume of the charges and the size of the movement of merchandise. Deliveries on past orders are larger than the common carriers can handle in a normal way and shippers are trying their best to expedite shipments.

The Government has been placing immense orders for khaki duck, shelter tent duck, sail duck, yarn dyed webbings, bleached and unbleached drills and twills.

TEXTILES UNDER CONTROL

Debate during the early part of last week in the Senate centered around the first section of the Food Control bill, defining the products to be controlled under the proposed legislation.

The Senate has added products to those indicated in the House bill, including cotton, wool and jute, and their products. The Senate adopted the section including these products by a vote of 42 to 16.

The proposed Government control of cotton, jute, wool and some other raw materials of textile lines and their products, is subject of many conversations in fabric quarters. Mill agents and mills are very stiff and appear to be disturbed less by cotton developments than by the fear of unsettling labor conditions as the summer goes on. Deliveries from mills are not good, due chiefly to indifference on the part of workers who want and who are taking holidays.

Despite the state of war, the submarine menace and shortage of bottoms, fabric exports are greater than ever in the history of the country, actual shipments of merchandise being in some cases 90 per cent higher than last year.

All points to a shortage of woolen and worsted fabrics for civilian wear owing to the pressure of Government business on the mills.

TIRE FABRICS

The tire fabric situation remains unchanged and quotations for many grades continue to be nominal, all mills being sold well up to their capacity for production.

HOSE AND BELTING FABRICS

Manufacturers of mechanical rubber goods appear to be marking time; having contracted for all the hose and belting fabrics they can need or can carry. The shortage of looms and yarns for these articles is growing more acute, the Government requirements causing the diversion of heavy fabric looms to the weaving of war fabrics.

A new cotton duck price list went into effect on July 9. It is understood that sales for large quantities are being made at discounts of from 30 to 40 per cent off this new list.

Some duck mills are running 80 per cent on Government orders and will continue to do so until September 1, at least, so that civilian needs are set aside for a time.

The Government has not actually commandeered any looms for duck production but where civilian deliveries have been found to interfere with those for the Government, the latter's officials have instructed the mills to set aside the civilian contracts and go ahead with Government work. This interference has not really worked any hardships for it has occurred in a period of readjustment of the civilian trade to war needs. Most of the civilian needs have been of a nature that could easily be deferred in consequence of the quiet conditions that followed the declaration of war.

The Government's system of placing orders on a 10 per cent profit over cost basis, without setting any limit to costs, has led mills in their efforts to get labor to handle these orders, to advance wages in a disturbing manner. The Government is paying and the contractor is not losing by wages advances. But labor in neighboring mills is being drawn away in bulk, and in order to keep the operatives satisfied mills are obliged to grant special wages to various workers. In some instances there have been flat wage increases of 50 per cent made necessary to keep hands at work.

This state of affairs partly explains the reluctance of mills and their agents to accept large civilian orders.

DRILLS, OSNABURGS AND SHEETINGS

There has been a heavy call on these types of fabrics for Government requirements. This, coupled with the steadier cotton market, has led to a new hardening in values and will probably lead to a readjustment of prices on these lines of cotton goods.

The Bureau of Supplies and Accounts has awarded Bliss, Fabyan & Co. contract for one million yards of unbleached drill at $240,000. Minot, Hooper & Co. will furnish two million yards bleached and shrunk cotton drill at $297,300.

GARMENT CLOTH

The enormous Government demand for woolen and worsted fabrics has made the supply of garment fabrics for proofing for civilian use decidedly small.

BURLAPS

The burlap market continued firm; trading is quiet but quotations are strong on a high basis. Few spot buyers are anxious to pay the high prices asked, yet holders of goods are so confident in their value that they will not listen to an argument over price. Cables report mills very well sold at Calcutta and Dundee, owing to heavy Government requirements.

NEW YORK QUOTATIONS

TIRE FABRICS.

17¼-ounce Sea Island, combed.	sq. yd.	$1.60@1.70
17¼-ounce Egyptian, combed		1.50@1.60
17¼-ounce Egyptian, carded		1.40@1.50
17¼-ounce Peelers, carded		0.80@0.90
17¼-ounce Peelers, combed		1.00@1.05
American Carded Staple, 12 to 20 yarn, per lb. (pound basis)		.60
American Carded Staple, 8 to 10 yarn, per lb. (pound basis)		.55

MECHANICAL DUCKS

Hose (spot)	lb.	.55
Hose (future)		.55
Belting (spot)		.55
Belting (future)		.55

DUCKS

Single Filling (pound basis)	lb.	$ .52
Double Filling (pound basis)		.56

DRILLS

37-inch 2.35-yard	yd.	.20
37-inch 2.75-yard		.17
37-inch 3.00-yard		.15½
37-inch 3.25-yard		.14¾
37-inch 3.50-yard		.14
37-inch 3.95-yard		.13
38-inch 2.00-yard Southern	lb.	.45
38-inch 2.00-yard Northern		.48
40-inch 2.47-yard Southern	yd.	.18
40-inch 2.47-yard Northern		.20
52-inch 1.90-yard Southern		.26½
52-inch 1.90-yard Northern		.27⅝
52-inch 1.95-yard Southern		.26
52-inch 1.95-yard Northern		.27
60-inch 1.52-yard Southern		.32
60-inch 1.52-yard Northern		.32¾

SHEETINGS

40-inch 2.35-yard	yd.	.20
40-inch 2.50-yard		.17
40-inch 2.85-yard		.15½
40-inch 3.00-yard		.14¼
40-inch 3.25-yard		.13¼
40-inch 3.60-yard		.13¾
40-inch 3.75-yard		.12½
40-inch 4.25-yard		.11
38-inch Jacket Cloths	lineal yd.	.17@.18

TWILLS FOR PROOFING

37-inch 2.85-yard	yd.	$ .17
37-inch 2.35-yard		.19
37-inch 2.10-yard		.23

COTTON STOCKINETTES (52-inch.)

E—11½-ounce	yd.	.70
A—11 -ounce		.50

BURLAPS (Spot Carload lots.)

40-inch 7½-ounce	per 100 yards	$9.95
40-inch 8 -ounce		10.10
40-inch 10 -ounce		13.25
40-inch 10½-ounce		13.55

Chemicals and Compounding Materials

NEW YORK, July 10, 1917.

A firm undertone prevailed in the market for chemicals and compounding materials. Deliveries on contracts are heavy and in many instances manufacturers are behind in their shipments, due chiefly to difficulty in obtaining basic materials. The increase in the output of solid tires is making itself felt in the market for compounding materials, as the buying of the commodities in this division has been quite active. The freight situation is still an important factor in the trade. Price changes were numerous, the revisions in most instances being upwards. Rubber manufacturers are showing more interest in 1918 contracts.

ANTIMONY

With the position of the metal practically unchanged and foreign brands of sulphuret in light supply the market closed with prices firm. In some instances producers are well sold ahead, considerable business having been booked for 1918 delivery. Red sulphuret for shipment was quoted at 25c. per pound, with the golden at 28c. Crimson sulphuret was quoted nominally at 51 to 53c. per pound.

ANILINE OIL

Manufacturers report the market for aniline oil as steady at 30 to 31c. per pound, spot and forward delivery. Second-hands have been shading the market of late, business passing in these quarters at 29c. per pound. The demand for aniline oil has been quiet.

BENZOL

Trading in pure benzol has been inactive and an easier feeling is noted, although prices have undergone no important changes. Sales of scattered cars of benzol have been reported at 55c. per gallon, immediate shipment. On forward business this figure might have been shaded. Solvent naphtha was quoted at 18 to 22c. per gallon.

DRY COLORS

The feature in the dry color market was the strength in so-called English vermilion. Sales were reported at $2 per pound, an advance of 25c. from the inside basis quoted a fortnight ago. Rubber makers' lampblack was quoted from 4½c. to 6c. per pound. Prussian blue was offered at 75c. to $1.50 per pound, the outside figure obtaining for the basis potassium. Chrome yellow held at 24 to 30c. for the chemically pure. Chrome green was offered at 32 to 38c.

LEAD PIGMENTS

Demand for the lead pigments was quiet, but with the position of pig lead firm at 11c., corroders held out for full quotations. Standard dry white lead was quoted at 11½c. to 12c., with the basic sulphate at 11 to 11½c. per pound.

ZINCS

Producers are adhering to their new policy of dealing with consumers direct, which leaves dealers without supplies. Dealers quote the market for American process zinc oxide for spot delivery as wholly nominal at 16½c. per pound. Producers report the market as unchanged at 10¼c. per pound for the horsehead brand, in 50-ton lots, forward shipment.

SULPHUR

Refiners report the market for sulphur as strong at the recently advanced basis of $3.35 per 100 pounds, in barrels, for the commercial grade, and $3.85 per 100 pounds for the flour. Prices named are for car lots. Stocks are limited and with no change in the position of crude brimstone the undertone remains strong.

Prices Current for Chemicals, Fillers, Colors, etc.

Acetone	lb.	.32½ @	.33½
Acids, Acetic, 28%	lb.	.05½ @	.06
Carbolic, C. P.	lb.	.40 @	.42
Cresylic, 95%	gal.	1.05 @	1.10
Muriatic, 20 deg.	lb.	.01¾ @	.02
Muriatic, 22 deg.	lb.	.02 @	.02¼
Nitric, 38 deg.	lb.	.07¼ @	.07¾
Nitric, 40 deg.	lb.	.07¾ @	.08
Sulphuric, 60 deg.	lb.	.01 @	.01½
Tartaric, crystals.	lb.	.78 @	.80
Aluminum Flake	ton	22.00 @	24.00
Aniline oil	lb.	.30 @	.31
Antimony, metal, spot	lb.	.22 @	.23
Oxide	lb.	.18 @	.20
Sulphuret, red	lb.	.25 @	.26
Sulphuret, golden	lb.	.28 @	.30
Sulphuret, crimson.	lb.	.52 @	.55
Asbestos	ton	35.00 @	50.00
Asphaltum, Egyptian	lb.	.20 @	.25
Domestic	ton	18.00 @	25.00
Barium sulphate, technical	lb.	.05 @	.06
Chloride	lb.	.05 @	.05½
Barytes, prime white imported	ton	38.00 @	40.00
white, domestic	ton	28.00 @	32.00
off color, domestic.	ton	18.00 @	22.00
Benzol, pure	gal.	.55 @	.60
Beta-naphthal, sublimed	lb.	.80 @	.85
unsublimed	lb.	.75 @	.80
Blacks, Drop	lb.	.07 @	.12
Ivory	lb.	.16 @	.30
Carbon gas	lb.	.27 @	.35
Lampblack R. M.	lb.	.04½ @	.06
Mineral blacks	ton	24.00 @	28.00
Blues, Prussian	lb.	.75 @	1.45
Soluble	lb.	1.45 @	1.75
Ultramarine	lb.	.25 @	.42
Browns, Sienna, Italian, burnt and powdered	lb.	.06 @	.10
American, burnt and powdered	lb.	.02 @	.03
Umber, Turkey, burnt, powdered	lb.	.04 @	.05
American, burnt.	lb.	.03 @	.03½
Cadmium sulphide, yellow.	lb.	2.25 @	2.50
Carbon bisulphide, bulk	lb.	.06½ @	.07½
tetrachloride, drums.	lb.	.16½ @	.17
Caustic Soda, 76@78%	lb.	.07½ @	.08
Chalk, precipitated, light.	lb.	.04½ @	.04¾
heavy	lb.	.03¾ @	.04¼
China clay, domestic	ton	18.00 @	22.00
imported	ton	25.00 @	35.00
Fossil flour	lb.	.06 @	.10
Gilsonite	ton	42.00 @	46.00
Glue, extra white	lb.	*.28 @	.38
medium	lb.	*.25 @	.28
low grade		*.22 @	.25
Glycerine, C. P. (drums)	lb.	.62 @	.63
Graphite, flake (bbl.)	lb.	.25 @	—
powdered (bbl.)	lb.	.10 @	—
Green, chrome	lb.	.32 @	.38
Ground glass (fine)	lb.	.02½ @	—
Hexamethylene	lb.	.65 @	.70
Infusorial earth, powd'd.	ton	60.00 @	—
bolted	ton	70.00 @	—
Iron oxide, red, reduced grades	lb.	.04 @	.05
red, pure, bright.	lb.	.12 @	.14
Lead, red oxide of	lb.	.13 @	.13½
sublimed blue	lb.	.11 @	.11½
white, basic carbonate.	lb.	.11½ @	.12
white, basic sulphate.	lb.	.11 @	.11½
Lime flour	lb.	.01½ @	.01¾
Litharge	lb.	.12½ @	.13
English	lb.	*.13 @	.14
sublimed	lb.	.12¼ @	.12½
Lithopone, domestic	lb.	.06¼ @	.06¾
Magnesia, carbonate	lb.	.12 @	.14
calcined, heavy	lb.	.10½ @	.14
calcined light	lb.	.65 @	.70
Magnesite, calcined, pwd.	ton	65.00 @	70.00
Mica, powdered	lb.	.03¾ @	.05
Mineral rubber (asphaltum base)	ton	40.00 @	60.00
Naphtha, motor gasolene (steel bbls.)	gal.	.24 @	—
68 @ 70 degrees (steel bbls.)	gal.	.30 @	—
70 @ 72 degrees (steel bbls.)	gal.	.31 @	—
73 @ 76 degrees (steel bbls.)	gal.	.33 @	—
machine (wood bbls.)	gal	.41 @	—
Oil corn, crude	cwt.	14.00 @	14.25
corn, refined	cwt.	15.81 @	15.91
linseed (bbl.)	gal.	1.12 @	1.15
palm, Lagos	lb.	.16 @	.16½
pine, yellow	gal.	.54 @	.56
rapeseed, refined	gal.	1.40 @	—
rapeseed, blown	gal.	1.50 @	—
rosin, first rectified.	gal.	.35 @	.36
tar (commercial)	gal.	.25½ @	.26½
Orange mineral, American.	lb.	.15 @	.15½
imported	lb.	.16 @	.20
Petrolatum, bbls., amber.	lb.	.04¼ @	.04¾
pale yellow	lb.	.04¾ @	.05
Pine tar	bbl.	12.00 @	12.50
Pitch	bbl.	4.25 @	4.75
Plaster of paris	bbl.	2.00 @	2.50
Red, Tuscan	lb.	.28 @	.31
Indian	lb.	.07½ @	.09
Rosin (common to good), @ 280 lbs.	bbl.	6.15 @	6.30
Rotten stone, powdered.	lb.	.02¾ @	.04¼
Rubber substitute, Black.	lb.	.11 @	.13
white	lb.	.15 @	.18
brown	lb.	.14 @	.15
Shellac, fine orange	lb.	.64 @	.65
T. N.	lb.	.58 @	.59
Bleached, commercial.	lb.	.56 @	—
Bleached, bone dry.	lb.	.68 @	—
Silex (silica)	ton	24.00 @	34.00
Soapstone, Powdered.	ton	14.00 @	20.00
Starch, corn, powdered.	lb.	.05 @	.05½
Sulphur, crude	ton	*45.00 @	50.00
roll, per 100 lbs. in	bbls.	3.70 @	4.15
flour		3.85 @	4.40
flowers		4.05 @	4.60
Talc, American		12.00 @	20.00
French	lb.	.15 @	.22
Toluol, pure, in drums.	gal.	1.90 @	2.00
Tripolite earth	ton	60.00 @	65.00
Turpentine, pure gum— spirits	gal.	.41 @	.42
wood	gal.	.38 @	.40
Venice, artificial.	gal.	.12 @	.13
Vermilion, English	lb.	2.00 @	2.25
Wax, beeswax, crude yel.	lb.	.44 @	.45
ceresin, white	lb.	.18 @	.22
carnauba, No. 3	lb.	.39 @	.40
Montan	lb.	*.35 @	.40
oxokerite, black	lb.	.60 @	.70
oxokerite, green	lb.	.80 @	.90
Parafin, refined, 118/120 M.P. (bbls.)	lb.	.09½ @	.09¾
123/125 M.P.	lb.	.10 @	.10¾
128/130 M.P.	lb.	.10¼ @	.10¾
133/136 M.P.	lb.	.11¾ @	.12
Crude, 117/118 M.P.	lb.	.07½ @	.08
124/126 M.P.	lb.	.08 @	.08½
Whiting, commercial	cwt.	.95 @	1.10
Paris, white, American	cwt.	1.25 @	—
English cliffstone.	cwt.	1.50 @	—
Yellow chrome	lb.	.24 @	.27
Zinc oxide, American process, horsehead brand.	lb.	†.10¼ @	.10½
selected	lb.	†.10¾ @	.11
"XX red"	lb.	†.10¼ @	.10½
French process, green seal	lb.	.15½ @	.16
red seal	lb.	.15 @	.15½
white seal	lb.	.16 @	.16½
Zinc substitutes	ton	30.00 @	35.00
Zinc sulphide, pure	lb.	.07½ @	—

*Nominal. †Contract prices.

The Crude Rubber Market

NEW YORK, July 10, 1917.

The past fortnight was a period of dullness in the local crude rubber market, both buyers and sellers being inclined to hold off. After the recent sharp break in prices, which was especially pronounced for the plantation grades, the market steadied, closing with the eastern descriptions slightly higher. The quiet is not unusual for this season of the year, business over the summer months being inactive because of factory repairs, inventory, etc. Reports of less favorable conditions in the automobile field had no apparent influence upon the market. Any serious contraction in the demand for automobiles would naturally affect the tire industry.

While the freight situation is tighter than ever, the importations of the gum are holding up remarkably well. According to the official customs returns the total imports of pure india-rubber into this country for the ten months ending with April, amounted to 247,292,936 pounds, valued at $137,265,779, which compares with 210,886,288 pounds, valued at $118,495,434 for the corresponding period a year ago, and 136,932,185 pounds, valued at $65,084,558 in 1915. These figures do not include balata, Guayule, or gutta-joolatong.

HENDERSON & KORN

Crude Rubber

New York City *Akron, Ohio*

The London market has also been quiet, but in the absence of any pressure, prices ruled steady. First latex pale crepe closed today at 29½ @ 29¾d per pound, prompt shipment. Arrivals of rubber in London have been quite regular and stocks are ample, despite the submarine campaign.

A feature in the New York market is the comparatively steady position of futures. In plantation grades the quotations covering October-December deliveries were only a shade under the spot basis. First latex pale crepe on the spot closed at 67½c. per pound, with August-September at 66½c., and October-December at 66c. In some quarters 66½c. was a firm price for the distant months. Importers were not disposed to shade the market on 1918 contracts.

Para up-river fine was offered at 68½c., spot delivery, contrasted with 69c. two weeks ago. Up-river fine for nearby delivery was steady at 67¾ @ 68c. Coarse held around 48c. for the entire period. Up-river medium and Islands fine went off, the decline being more in the nature of a readjustment in values. Caucho ball was irregular, there being sellers at 44c. per pound. Cameta was steady, closing practically unchanged.

Central American rubber was lowered in the absence of demand. Prime Corinta was offered at 42c. per pound, spot and nearby delivery, which compares with 45c. a fortnight ago. The situation in Guayule was without change. Imports of Guayule for the month of April amounted to 328,545 pounds, valued at $80,511, which compares with 157,662 pounds, valued at $45,525 in April, 1916. Guayule gum was quoted nominally at 39 @ 40c. per pound. East India pontanak for shipment held around 12c. per pound, duty paid, f. o. b. New York.

New York Quotations

	Spot.	Aug.-Sept.	Oct.-Dec.
Para—Up-river fine.....lb.	68½	7¾	..
Up-river medium	62	61	..
Up-river coarse	48	47½	..
Caucho ball	44	44	..
Islands fine	65	64	..
Islands coarse	29	28¾	..
Cameta	33½	33½	..
Madeira fine	71½	71	..
Ceylons-Smoked sheets,ribbed	67½	66½	66
Smoked sheets, plain....	66½	66	65½
First latex pale crepe....	67½	66½	66
Amber crepe	63½	63	63
Clean brown crepe.....	61½	61	61
Centrals—Corinto, prime...	42½	42	..
Esmeralda, prime.....	42	41½	..
Mexican scrap	41	..	..
Balata, sheets .....*	62	..	..
Balata, block .....*	56	..	..
Guayule .....*	39	..	..
Africans—Rio Nunez, string*	64	..	..
Massai, red .....*	52	..	..
East Indian Pontanak.....	12½	12¼	12
Palembang	13	12½	12¼

* Nominal.

The Scrap Rubber Market

NEW YORK, July 10, 1917.

The scrap rubber market continues without special features. Dealings are largely routine and prices are on a nominal basis. The following prices are those quoted by middlemen to consumers:

Domestic scrap—	
Boots and shoes, No. 1, per lb....	9½@ 9¾
Trimmed arctics	7¼@ 7⅜
Bicycle tires	5 @ 5½
Auto tires	6⅞@ 7
Solid tires	6⅝@ 6⅞
No. 1, inner tubes.....	25 @26
No. 2, inner tubes.....	12½@12¾
Hose	1¾@ 2
Red tubes.....	12½@12¾
Black rubber.....	3 @ 4
Foreign scrap—	
Boots and shoes, No. 1.....	8½@ 8¾
Auto tires	6 @ 6¼
White mixed	8 @ 8¼
Red mixed.....	6⅜@ 6⅝
Airbrakes	3 @ 4

Among the Dealers

K. A. WARD has established a depot for the Ajax Rubber Co., at 117 S. Highland Avenue, Pittsburgh, Pa.

L. F. HART will handle sales in Palm Beach County, Fla., and will establish a service station and headquarters at the Palm Beach Tire Co., on Clematis Avenue, Miami, Fla.

JAMES PARKER purchased a half interest in Ray Livesay's vulcanizing shop, which is located on East Martin Street, Abingdon, Ill. The new firm will be known as the Abingdon Vulcanizing Shop.

THE SUTHERLAND TIRE SHOP has removed from the Orpheum building on North Main Street to 210 Mulberry Street, Rockford, Ill. A complete line of automobile accessories will be carried and a free air service will be maintained at the curb, in front of the building.

THE DAVENPORT VULCANIZER & MFG. CO., Davenport, Ia., has been formed to succeed the Davenport Vulcanizing Mfg. Co.

A. M. REEVES, for the past three years manager of the Todd Rubber Company's store, Ansonia, Conn., on Main street has assumed the management of a new store that is to be opened by the same company in Hartford.

THE DOMINION AUTO SUPPLY CO. has recently been incorporated at Hamilton, Ohio, and has secured quarters at 13-19 High Street. The company will handle tires and a complete line of automobile accessories.

THE WALTZ AUTO SUPPLY CO. has taken over the business of the Electric Starter Sales Co., together with the building at 841 North Broad Street, Philadelphia, Pa., which the new company will occupy. It will handle all accessories, tires, etc., formerly carried by the old company.

Classified Buyers' Index To Rubber Factory Equipment

Below is printed an alphabetical list of the principal machinery and other equipment used in rubber factories, compiled from information supplied by the manufacturers. The key symbols placed after the items refer to the names of the manufacturers that make them, as shown in the list of Manufacturers of Rubber Factory Equipment, that is printed elsewhere on this page.

Accumulators, A11, B23, F3, T31, W31.
Autoclaves, A11, B31, D15, E11, S55.

Balances. B7, E11, S19, T27.
Bins, Stock, O3.
Blocks, Pillow, A11, F3, T43.
Blowers, Tube Splicing, G3.
Boilers, Steam, S31.
Boosters and Exhausters, A3.
Boxes, Compound, O3.
Brands, Aluminum, D19.
Brakes, T43.
Buckets, D27.

Cages, D27.
Calenders, A11, F3, S31, T43.
Calenders, Embossing, F3, H11, T19, T43.
Cars, Shoe, O3.
Carton Filling Machines, W23.
Carton Making Machines, W23.
Castings, A11, B3, B23, B31, D27, F3, M3, T31, T43, W31.
Chemical Apparatus, B31.
Chucks, S47.
Clutches, Brake, F3, T43.
Clutches, Friction, F3.
Clutches, Magnetic. F3, T43.
Compressors, Air, S31, T31.
Condensers, D15, S55, T31.
Conveyors, D27.
Cores, Tire, A11, B3, T31.
Couplings, Power, T43.
Crackers, A11, F3, T43.
Cranes, D27.
Cutters, Baby Carriage Tire, W23.
Cutters, Band, A11, E3, H31, R7.
Cutters, Bias, W23.
Cutters, Duck Plug, W23.
Cutters, Gaskets, A11, H11, H31.
Cutters, Raw Stock, W23.
Cutters, Rubber Stock, H19, H31, R7, T11.
Cutters, Scrap, A3, T11.
Cutters, Strip, E3, F3.
Cutters, Tubing, W23.

Devulcanizers, B11, D15.
Dies, A11, D19, H11.
Die Sinking, A11, D19, H11.
Dies, Cutting, D19, H11.
Digestors, D15.
Dipping Machines, O3.
Doubling Machines, F3, T43.
Doubling Machines, Fabric, T17.
Drills, D27.
Drives, A11, D27, F3, T43.
Drives, Chain, D27, F3, T43.
Drives, Motor, A11, D27, F3, T43.
Drums, Bead, A11, T31.
Drums, Tire Machine, G3.
Drums, Tread, A11.
Dryers. A35, B31, D15, H27, S31, S55.
Dryers, Fabric, C51, D15, T19, T43.
Dryers, Rubber, D15.
Dryers, Vacuum, D15, S55.
Dynamometers, S19.

Engines, Steam, S31.
Engraving Machines, Hard Rubber, A11.
Experimental Outfits, A11, B3, D15, D19, E11, F3, T43.
Extractors, E11.

Fittings, Hydraulic, A11, B23.
Fittings, Water, A11.
Folders, Belt, F3.
Forms, Dipping, D19.

Gages, Pressure, B23, S7.
Gages, Recording, S7.
Gages, Thickness, H11.
Gears, A11, F3, M23, T43.
Governors, Pump, M15.
Grinders, A11, F3, S47, T43.
Grinders, Hard Rubber Dust, A3, A11, F3, R3, T43.

Hammers, Steam, B31.
Hangars, D27, M27.
Hoists, D27.
Holders, Form, O3.
Hooks, Tire, D27.
Hose Machines, F3, R27.
Hydraulic Machinery, A11, B23, F3, H19, T43, W31.
Hydrometers, T7, T27.

Ice Machines and Equipment, D27.
Impregnators, B31, D15, F3, S55.
Instruments, Recording, S7, S19.
Insulating Machines, R27.

Joints, Expansion, A11, B23.

Kettles, A11, B31, D7, D15, S31, S55.
Knives, H31, J7, R7, T43.
Knives, Calender, R7.
Knives, Jar Ring, R7.
Knives, Mill, R7.
Knives, Tapping, R7.

Laboratory Apparatus, D7, D15, F11, F3, R27, S15, S19, T27.
Ladders, Rolling, M27.
Lathes, Hard Rubber, A11, S47.
Lathes, Jar Ring, A11, T31, W23.
Lathes, Wrapping, A11.
Lockers, O3.
Looms, Hose, R27.

Magnets, D23.
Mandrels, A11.
Markers, Shoe, H11.
Microscopes, E11, T27.
Mills, Grinding, A3, A11, E11, F3, R3, D7, T43.
Mills, Mixing, A11, D7, F3, T43, W7.
Mills, Paint, D7, R3.
Mills, Washing, A11, F3, T43, W7.
Mixers, Solution, D7, W7.
Molds, Hose, A11.
Molds, Mechanical, A11, D19, H11, H19, M3, T15.
Molds, Sole and Heel, D19.
Molds, Sundries, D19, H11.
Molds, Syringe Bag, D19.
Molds, Tire, A11, B3, T31.
Molds, Toy, D19.
Molds, Water Bottle, D19.
Motors, D27, E11, T43.

Name Plates, H11.

Pattern Making, A11, M3, T43.
Percolators, D7, D15, E11, S55.
Plaiters, W23.
Plantation Machinery, F3, T43.
Plants, Aniline Oil, D15.
Presses, Baling, B23.
Presses, Bead, A11, B23, F3, W31.
Presses, Belting, A11, B23, F3, T43, W31.
Presses, Blocking, B23.
Presses, Filter, A3.
Presses, Forcing, A11, B23, T43, W31.
Presses, Hand, A11, B23, E11, F3, H19.
Presses, Heater, A11, B11, F3, W31.
Presses, Hydraulic, A11, B23, F3, H19, T19, T31, T43, W31.
Presses, Plate, A11, B23, F3, W31.
Presses, Sheeting, A11, B23, F3.
Presses, Shoddy, A35.
Presses, Tire Setting, A11, B23, W31.
Presses, Vulcanizing, A11, B11, B23, F3, T31, W31.
Pulverizers, A3, D7, E11, R3.
Pumps, A3, A11, E11, M27, S31, T31.
Pumps, Centrifugal, T31, W31.
Pumps, Hydraulic Pressure, A11, B23, S31, T31.
Pumps, Spray, M27.
Pumps, Vacuum, A3, B31, D15, E11, S31, S55, T31.

Racks, Drying, D7, D27.
Racks, Shoe Car, H11, O3.
Racks, Tire. D7, D27, O3.
Railways, Industrial, D27.
Reclaiming Machinery, B11, D7, F3, R27, S55, T43.
Refiners, A11, F3, T43.
Regulators, Damper, M15.
Regulators, Pressure, D3, M15, T7.
Regulators, Pump, M15.
Repair Equipment, Tire, B11.
Riveters, W31.
Rollers, Hand, B3, H11, H19.
Rollers, Strip, B3.
Rolls, A11, F3, T43.
Rolls, Chilled, A11, T43.
Rolls, Cooler, F3.
Rolls, Engraved, F3, H11.
Rolls, Mill, A11, F3, T43.
Rolls, Sand, A11, F3, T43.
Rolls, Steel, F3.
Rolls, Wood, G3.

Safety Appliances, D27, F3.
Scales, B7, D27.
Screens. D7, O3.
Screw-Downs. Calender, A11, T43.
Separators, Air, R3.
Separators, Magnetic, D23.
Separators, Water, A35.
Shafting. A11, D27, F3, T43.
Shears, Hand, J7.
Shears, Power, F3.
Shells, Belting, G3.
Shells, Calender. C55, O3
Shells, Stock, G3.
Sifters, D7.
Sifters, Brush, D7.
Slitting Machines, F3.
Skivers, J7, R7.
Solvent Recovery Apparatus, B31, D15, S55.
Spreaders, A11, F3, T43.
Sprockets. D27. M23, T43.
Stamps, Steel, D19, H11.
Stands, Tire, A11, B3, T31.
Starters, Motor, T43.
Sticks, Shoe, H11, O3.
Stitchers, B3, H11.
Stops, Safety, D3, D27, F3, T43.
Strainers, A11, R27.
Stretchers, Belt, A11, F3, T19, T43.
Stretchers, Hydraulic, A11, F3, T43.
Switches, Electrical, D27, T43.

Tables, Calender, O3.
Tables, Cooling, D27, O3.
Tables, Tire Conveying, O3.
Tanks, Acid, B11, D15, S55, T19.
Tanks, Soaking, B11, S55, T31.
Testing Machines, B11, S19.
Thermometers, E11, S7, T7, T27.
Tire Making Machines, B3, R27, T31.
Tire Tread Machines, R27.
Tire Wrapping Machines, Cloth, T15, T31, T43.
Tools, Fountain Pen, S47.
Tools, Rubber Workers', H11, H31.
Tramways, Overhead, D27, O3.
Transmissions, A11, D27, M23, T43.
Traps, Steam, D3.
Trimmers, W23.
Trolleys, D27.
Trucks, Industrial, D7, D27.
Tube Wrapping Machines, A11, T43.
Tubing Machines, A11, R27.

Valves, Float, M15.
Valves, Hydraulic, B23, D27, T31, W31.
Valves, Reducing, D3, D27, M15.
Vulcanizers, A11, B11, D15, T31, W31.

Washers, A11, D15, F3, T43.
Washers, Beater, T43.
Washers, Tub, D7, F3, T43.
Wheels, Roller Bearing, D27.
Wire Drawing Machines, T43.
Wiring Machine, Hose, A11.
Wrapping Machines, A11, T15, T31.

Manufacturers of Rubber Factory Equipment

THE RUBBER AGE will gladly supply information regarding the addresses and products of the following manufacturers of Rubber Factory Equipment.

The advertisements of concerns whose names appear in bold face type will be found in this issue of THE RUBBER AGE.

A 3—Abbe Engineering Co.
A 7—Adams, John J.
A 11—Adamson Machine Co.
A 15—Adamson Mfg. Co.
A 19—Air Utilities Co., Inc.
A 23—Akron Rubber Mold & Machine Co.
A 27—Allen Machinery Co.
A 31—Alvey-Ferguson Co.
A 35—American Process Co.
A 39—American Rotary Valve Co.
A 43—American Tool & Machine Co.
A 47—Arthur Vulvanizing Machine Co.

B 3—Banner Machinery Co.
B 7—Becker, Christian, Inc.
B 11—Biggs Boiler Works Co.
B 15—Birmingham Iron Foundry.
B 19—Bonnett Co.
B 23—Boomer and Boschert Press Co. See Advertisement on Page 331.
B 27—Bristol Co.
B 31—Buffalo Foundry & Machine Co.

C 3—Cameron Machine Co.
C 7—Cell Drier Machine Co.
C 11—Champion Shoe Machine Co.
C 15—Chernack Mfg. Co.
C 19—Chicago Mold & Machinery Co.
C 23—Edred W. Clark.
C 27—Colonial Sign & Insulator Co.
C 31—Continental Rubber Works.
C 35—Cox, Geo. P., Last Co.
C 39—Crane Co.
C 43—Curtis & Marble Machine Co.
C 47—Cutler-Hammer Clutch Co.
C 51—Cutter, G. A., Sales Agent.
C 55—Cylinder Mfg. Co.

D 3—Davis, G. M., Regulator Co.
D 7—Day, J. H., Co.
D 11—De Mattia Bros.
D 15—Devine, J. P., Co.
D 19—Die Sinking & Machine Co. See Advertisement on Page 328.
D 23—Dings Magnetic Separator Co.
D 27—Duncan, J., Co.

E 3—Eastman Machine Co.
E 7—Eggers, William, & Sons.
E 11—Elmer & Amend.
E 15—Esterline Co,

F 3—Farrel Foundry & Machine Co.
F 7—Ford Chain Block & Mfg. Co.
G 3—Gammeter, W. F. See Advertisement on Page 329.
G 7—Garvin Machine Co.
G 11—General Electric Co.
G 15—Goodnow, L. H., Foundry Co.

H 3—Hartford Special Machinery Co.
H 7—Haywood Tire & Equipment Co.
H 11—Hoggson & Pettis Mfg. Co. See Advertisement on Page 327.
H 15—Hollander & Johnson.
H 19—Holmes Bros.
H 23—Housatonic Machine & Tool Co.
H 27—Hunter Dry Kiln Co. See Advertisement on Page 326.
H 31—Hyde Manufacturing Co. See Advertisement on Page 326.

J 3—Jones & Kuhlke. See Advertisement on Page 329.
J 7—Judson Cutlery Co.

K 3—Knott, L. E., Apparatus Co.
K 7—Kohl Mfg. Co.

L 3—Lander Last Co.
L 7—Landis Machine Co.
L 11—Lenz & Naumann.
L 15—Link Belt Co.
L 19—Lloyd, John, Co.
L 23—Lobdell Car Wheel Co.

M 3—McFarland Foundry & Machine Co.
M 7—McGrory, Philip.
M 11—Mahlow & Wykoff.

Manufacturers of Rubber Factory Equipment—Continued

M 15—Mason Regulator Co.
M 19—Miller, Chas. E.
M 23—Morse Chain Co.
M 27—Myers, F. E., & Bro.

N 3—New England Butt Co.
N 7—Norton, M., & Co.

O 3—Ornamental Iron Works Co.

P 3—Pierce Wrapping Machine Co.

R 3—Raymond Bros., Impact Pulverizer Co.
R 7—Richard Co., Inc., Stephen.
R 11—Riehle Bros., Testing Machine Co.
R 19—Ross, Charles, & Son Co.
R 23—Rossman, Roy G.
R 27—Royle, John, & Son.

S 3—Sargent, E. E., & Co.
S 7—Schaefer & Budenberg Mfg. Co.
S 11—Schuchardt & Schutte.
S 15—Scientific Materials Co.
S 19—Scott, Henry L., & Co.
S 23—Sessions, J. H., & Sons.
S 27—Shaler, G. A.
S 31—Shartle Machine Co.
S 35—Shoe Hardware Co.
S 39—Singer Sewing Machine Co.
S 43—Smith-Backmann Machine Co.
S 47—Smith Co., James M.
S 51—Southwark Foundry & Machine Co.
S 55—Stokes, F. J., Machine Co.
S 59—Summit China Co.

T 3—Tagliabue Mfg. Co.
T 7—Taylor Instrument Co.
T 11—Taylor, Stiles & Co.
T 15—Terkelsen & Wennberg.
T 19—Textile Finishing Machine Co. See Advertisement on Page 328.
T 23—Textile Machine Co.
T 27—Thomas Co., Arthur H.
T 31—Thropp's, John E., Sons Co.
T 35—Trefethen, F. L.
T 39—Troemner, Henry.
T 43—Turner, Vaughn & Taylor Co. See Advertisement on Page 332.

U 3—Utility Mfg. Co.

V 3—Venn, Frank.

W 7—Werner & Pfleider Co.
W11—Westinghouse Electric Mfg. Co.
W15—Williams Foundry & Machine Co.
W19—Williams Patent Crusher & Pulverizer Co.
W23—Wills, Arthur J.
W27—Wolff Co.
W31—Wood, R. D., & Co.
W35—Work, Joseph W.

CHAS E. WOOD

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Crude Rubber, Balata, Gutta Percha and Kindred Products

Prompt attention and efficient service to buyer and seller alike

Telephone Broad 1485 — Akron Office: 328 Hamilton Bldg., Phone 7007 Main

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24 Issues for $1.00

120 West 32nd Street, New York

THE HUNTER DRYING PROCESS *for* Crude Rubber

Insures

Better quality of finished products.

Saving of 40% in time of breaking down.

Send practical working samples up to 1000 pounds to our Laboratory. We will dry and return them for comparative tests without obligation on your part.

Let us demonstrate *with your materials* one of the greatest improvements known to the Rubber Industry.

THE HUNTER DRY KILN CO.

Laboratory and Offices

26th and Cornell Ave. Indianapolis

EXTENSION BLADES AND HANDLES
I.P.HYDE
Mention Extension Blades and Handles to any experienced rubber mill worker and his mind just naturally turns to the I. P. HYDE Brand.—Why? Because he has come to know that they are right for his use, made right for rubber mill work and work right. Let us send you Catalog-R, shows 80 different styles of rubber cutting knives.
HYDE MFG. CO.
Southbridge Mass.
I.P.HYDE

OBALSKI & SWEENEY, Inc.

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AND KINDRED PRODUCTS

Importers and Traders Building 59-61 Pearl Street

NEW YORK

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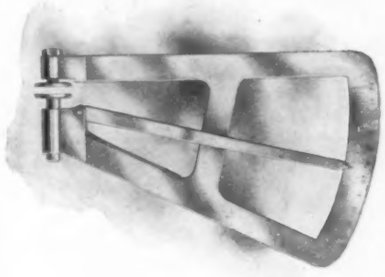
FOR

MEASURING SHEET RUBBER



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AND ROLLERS FOR TIRE & SHOE MANUFACTURING

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Washed and Refined Rubber

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Akron, Ohio

78-80 WALL ST.
NEW YORK

J. H. LANE CO.

334 FOURTH AVE.

NEW YORK

Motor Tire Ducks Hose and Belting Ducks Yarns

CHICAGO BOSTON

RUBRAX

MANUFACTURERS
of
Elastic
Hydro-Carbons

THE U.S. ASPHALT REFINING CO. RUBRAX QUALITY FIRST TRADE MARK

Plants and Branches at
BALTIMORE, MARYLAND
CARTERET, NEW JERSEY
PHILADELPHIA, PENNSYLVANIA

THE INTEROCEAN OIL COMPANY
90 West Street: NEW YORK

MAGNESIA

Double Calcined Heavy
and
Carbonate of Magnesia

General Magnesite & Magnesia Co.
Montgomery Avenue and 29th Street
Philadelphia

THE DIE SINKING & MACHINE CO.

MOLD MAKERS AND ENGRAVERS

MANUFACTURERS OF
Molds for Syringe Bags Hot Water Bottles and Mechanical Goods : :

Hose Brands and Belting Dies. Steel Stamps. Aluminum Brands. Serial Numbers. Cutting Dies. Tubing Dies. Sole and Heel Molds.

Catalogue sent on request AKRON, OHIO

EMBOSSING CALENDERS

For Artificial Leather, Oil Cloth,
Carriage and Automobile Covers

DRYING MACHINES

with Copper or tinned iron Cylinders for Cotton Ducks, Drills and Sheetings

The Textile-Finishing Machinery Co.
Office, No. 83 Exchange Place
PROVIDENCE, R. I.

CHEMICALS COLORS FILLERS

K&B

FOR ALL REQUIREMENTS

KATZENBACH & BULLOCK COMPANY, Inc.
NEW YORK TRENTON CHICAGO SAN FRANCISCO

TIRE FABRICS

Made of Yarns of Our Own Spinning, and with
Machinery of Latest and Most Approved Type

The Fabric for Endurance

MANHASSET MFG. COMPANY, Providence, R. I.

TIRE FABRICS

OF EVERY DESCRIPTION

TAYLOR, ARMITAGE & CO., Inc.

Equitable Building, 120 Broadway, New York

SEA ISLANDS EGYPTIANS PEELERS

FABRICS TO SPECIFICATION

PASSAIC COTTON MILLS AMERICAN TIRE FABRIC CO.

We Are Now Supplying The World

WITH

UNIVERSAL STEEL CALENDER STOCK SHELLS

in 4", 5", 6", 8" and 10" diameters, any lengths from 4" to 100", any size square mandrel holes.

Materials always on hand.
Try us on that rush order.

W. F. GAMMETER Cadiz, Ohio

ALBERT V. W. TALLMAN

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BROOKLYN SULPHUR WORKS

FLOUR SULPHUR

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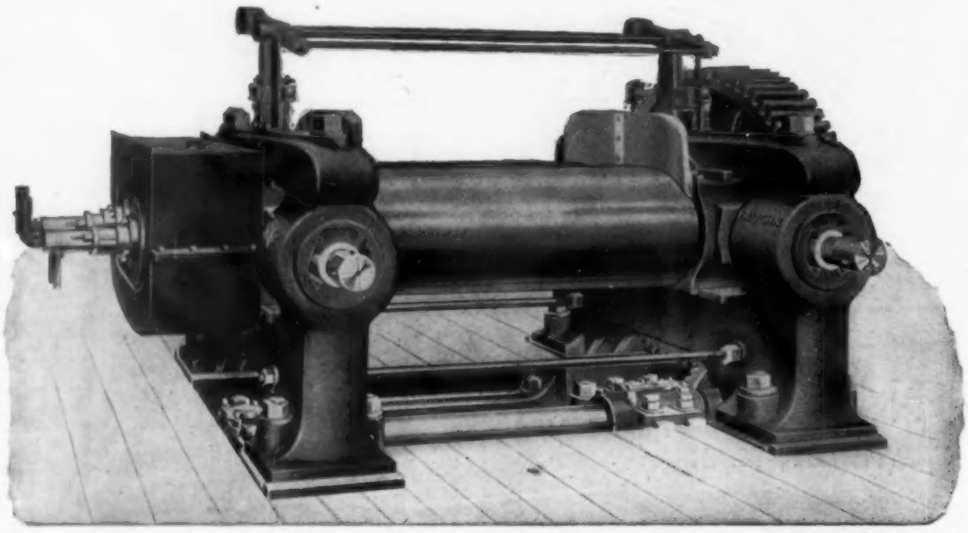

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